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| IDENTIFIERS | *Textile Occupations |

ABSTRACT

This packet contains eight learning modules developed for use in Fieldcrest Cannon workplace literacy classes for yardage binder operators. The modules cover the following topics: (1) communications 1 and 2; (2) safety; (3) fractions; (4) statistical process control; (5) measurement; (6) calculator; (7) benefits; and (8) computer. Modules consist of an outline that links specific instructional objectives with learning activities, time needed, resources and materials to use, and an evaluation process. Learning activities include a motivational activity, teaching vocabulary, and instructional activities. Attachments to lesson plans include glossaries, information sheets, worksheets, transparency masters, and exercises. (KC)

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ED 425 320

Alabama State Department of Education

Funded by the National Workplace Literacy Program
Contract V19A40030

# Fieldcrest Cannon Workplace Literacy Modules for Yardage Binder Operators

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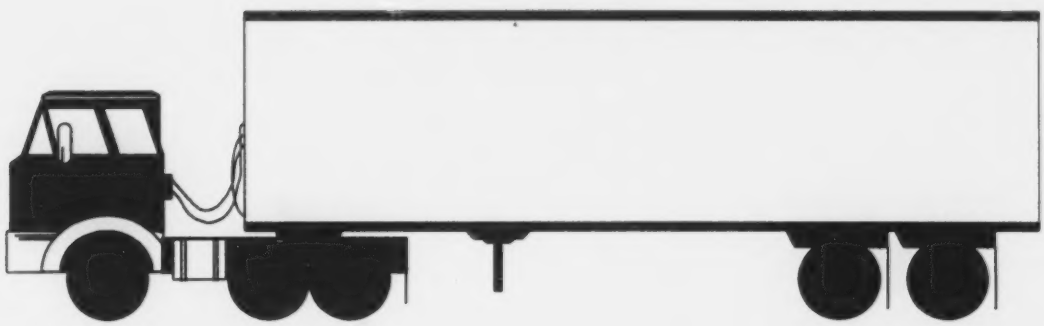
CE077 671

1. **Communications 1**
   **Communications 2**
2. **Safety**
3. **Fractions**
4. **SPC**
5. **Measurement**
6. **Calculator**
7. **Benefits**
8. **Computers**

# Yardage Binder Operators



# Fieldcrest Cannon

# Communications 1

**Module: Communication - Lesson One** **Overall Time 50 min**
**Job Title: Yardage Binder Operators** **Page 1 of 2**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Students will be able to identify and demonstrate the three directions communication flows in a work situation. | **Motivational Activity:** Instructor will distribute index cards. Learners will be asked to do the following: (1) Give a precise definition of the word "soon" (in terms of hours, minutes, etc.). (2) Write several sentences in which the word "run" has different meanings. (3) Quickly, and without thinking about it, write down the number of floors they think are in a tall building. Discuss the different answers and talk about how different people have different opinions on the same subject. | 10 min | Index cards | Teacher Observation |
| | **Pre-Assessment:** Thumbs up or down opinion. | | | Teacher Observation |
| | **Teach Vocabulary**: Use overhead transparency to discuss vocabulary words and meanings (first 7 words for this lesson), Atachments A & B. | 10 min | Attachments A and B. Overhead Projector | |

**Module: Communication - Lesson One**
**Job Title: Yardage Binder Operators**



| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| | **Instructional Activities:**<br>Teacher reads Attachment C and leads discussion. | 15 min | Attachment C | Teacher observation of responses. |
| | Learners complete Attachment D.<br>Discuss learners' answers | | Attachment D | |
| | Discuss three directions of communication (Overhead transparency, Attachment E) | 15 min | Attachment E<br>Overhead Projector | |
| | Attachment F (pages 1 & 2) "Making Requests". | | Attachment F | |
| | Attachment G (pages 1 & 2) "Disagreeing Agreeably" | | Attachment G<br>Overhead Projector | |
| | Word Search puzzle, Attachment H (Supplemental, if time allows) | | Attachment H | |
| | **Post Assessment**:<br>Thumbs up or thumbs down opinion. | | | Teacher Observation |

**Job Title:** Yardage Binder Operators

**Module:** Communication Skills
Lesson One

**General Instructional Objective:** Participants will be able to improve communication with co-workers and supervisors.

**Specific Instruction Objective:** Identify and demonstrate the three directions communication flows in a work situation with 100% accuracy.

**Motivational Activity**: Distribute index cards. Ask group to do the following:

1. Write a precise definition of the word "soon" (in terms of hours, minutes, days, weeks).

2. Write several sentences in which the word "run" has different meanings. (Example: Could you teach someone to run your machine? Will you run an errand for me? Can you run a mile? The lady had a run in her hose.)

3. Quickly, and without thinking about it, write the number of floors in a tall building.

How many different time values did the group get for the word soon?

Discuss the different meanings of the word run. Can you think of other words that have more than one meaning? (Example: solution)

Did everyone agree on the number of floors in tall building? How many different answers were given? Help learners see that different people have different ideas and opinions on the same subject and that there is sometimes no right or wrong answer.

**Pre-Test:** Ask participants to indicate with a thumbs up or thumbs down signal, their knowledge of the following questions: (up meaning they understand the meaning, down meaning they do not understand the meaning, sideways meaning they are not sure).

Can you name the three directions of communication in a company?
Do you know the meaning of upward communication?
Do you know the meaning of downward communication?
Do you know the meaning of lateral communication?

**Teach Vocabulary:** Use overhead transparency to define words (Attachment A). Allow participants to work in groups or pairs to decide on a meaning for each word. Teacher will write the meaning on the overhead transparency as the definitions are given. Distribute Attachment B. This glossary may be used as a reference. The last 5 words will be covered in Communications Lesson Two.

**Instructional Activities:**
Read Attachment C, "UP DOWN ACROSS" together (teacher reading aloud, learners following along).

Participants will complete true or false work sheet (Attachment D) independently. After everyone has finished, teacher will read each statement and ask for volunteers to give answers.

Use overhead transparency (Attachment E) to discuss three directions of communication in a company. Also discuss the fact that communication is both written and oral. Ask a volunteer to give an example of a particular time that he/she has communicated upward to a supervisor or to plant management. (Follow by asking for other volunteers to give examples of downward and lateral communication in his/her job.)

"Making Requests" (Attachment F, pages 1 & 2). Teacher will allow learners time to read scenarios and decide which one they feel is best. This would be an example of what direction of communication? (Upward)

Teacher will ask for a volunteer to describe a request that might be made from management or supervisor. If no one volunteers, teacher could discuss management requesting Sue to work on Saturday due to a rush order needed by a large customer. Would this be an example of downward communication? (Yes)

"Disagreeing Agreeably" (Attachment G, pages 1 & 2).
Teacher will lead discussion about disagreeing with peers (lateral direction) and with supervisors (upward direction). Use Attachment G, page 1 to guide discussion. Ask learners to complete Attachment G, page 2. Discuss answers.

Complete word search puzzle (Attachment H).

**Post-Test:** Ask participants to indicate, with a thumbs up or thumbs down signal, their knowledge of the following questions: (up meaning they understand the meaning, down meaning the do not know the meaning, sideways meaning they are not sure).

Can you name the three directions of communication in a company?
Do you know the meaning of upward communication?
Do you know the meaning of downward communication?
Do you know the meaning of lateral communication?

Attachment A

# VOCABULARY WORDS

Communication –

Upward communication –

Downward communication –

Lateral (across) communication –

Request –

Translate –

Peer –

# GLOSSARY

Communication – Two-way exchange of information

Upward communication – Communication from hourly employees upward to plant management

Downward communication – Communication from management downward to hourly employees

Lateral (across) communication – Communication between peers (or co-workers) who work at the same level of the organization

Request – Persuasive communication usually of a personal nature

Translate – To express in different terms or words

Peer – One that is of equal standing with another

Empathy – Showing you understand and relate to another's feelings without making his/her feelings or problems your own. Empathy means being sincerely interested in and concerned about other people. (Do not confuse *empathy* with *sympathy*. Sympathy is feeling sorry for someone and is an entirely different emotion.)

Attitude – A feeling or emotion toward a fact or a statement

Feedback – The transmission of evaluative information to the original source

Assertive – Acting in a bold or self-confident manner

Body Language – Nonverbal communication utilizing details such as facial expression, gestures, eye contact, touching, and space to give meaning to messages

# UP DOWN ACROSS

At Fieldcrest Cannon, as well as any other industrial organization, there are three directions in which communication flows: Up ⇑ Down ⇓ Across ⇔

Of the three, upward communication is the most difficult because it must pass through a number of levels to get from source to destination. At each level, messages can be lost or misinterpreted. However, upward communication is very important to both the company and its employees. Valuable ideas originate at the lower levels of the organization that would be lost without upward communication.

Communicating with peers (co-workers) is also important. By establishing good communication with peers, cooperation and teamwork are promoted. Practicing the golden rule is the key to successful communication in the lateral (across) direction.

Industries such as Fieldcrest Cannon must also communicate downward in order to translate decisions into actions. The downward communication path is also useful for passing needed information to employees. (This communication is often written as well as oral.)

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# True or False

Read the following statements and decide if the statement is true or false. Place a circle around the correct answer.

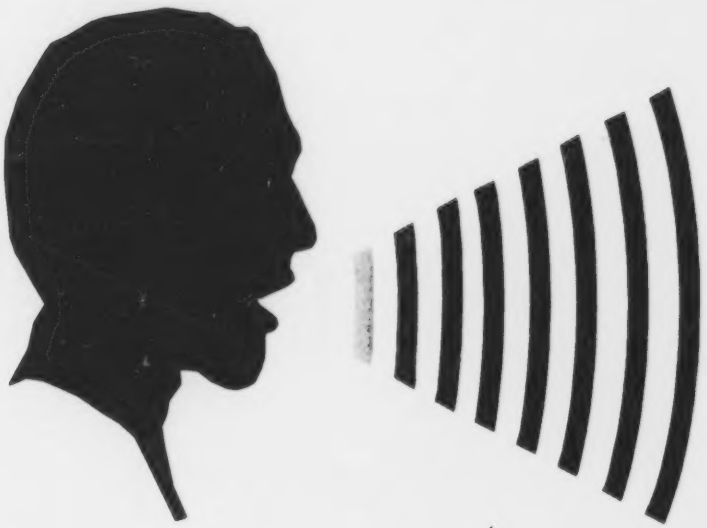
| | | |
|---|---|---|
| 1. Lateral communication is the most difficult direction of communication. | True | False |
| 2. Communicating with peers is not important. | True | False |
| 3. Valuable ideas often originate at the lower levels of an organization. | True | False |
| 4. Decisions are translated into actions by downward communication. | True | False |
| 5. Upward communication is important only to the company, not the employee. | True | False |
| 6. Cooperation and teamwork are promoted by good lateral communication. | True | False |
| 7. Downward communication is useful for passing needed information to employees. | True | False |
| 8. Communication is always oral. | True | False |
| 9. Practicing the golden rule is the key to successful communication in the lateral (across) direction. | True | False |
| 10. The three directions of communications are up, down, and across. | True | False |

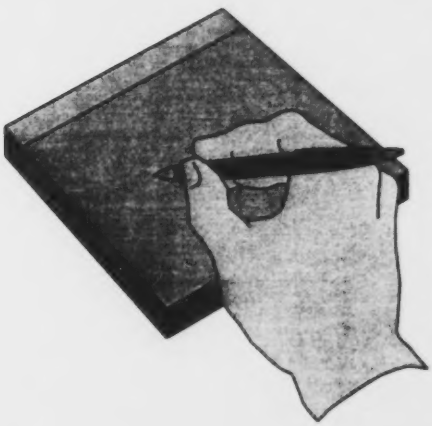
Attachment D
(Answer Key)

# True or False

Read the following statements and decide if the statement is true or false. Place a circle around the correct answer.

1. Lateral communication is the most difficult direction of communication. — True (False)
2. Communicating with peers is not important. — True (False)
3. Valuable ideas often originate at the lower levels of an organization. — (True) False
4. Decisions are translated into actions by downward communication. — (True) False
5. Upward communication is important only to the company, not the employee. — True (False)
6. Cooperation and teamwork are promoted by good lateral communication. — (True) False
7. Downward communication is useful for passing needed information to employees. — (True) False
8. Communication is always oral. — True (False)
9. Practicing the golden rule is the key to successful communication in the lateral (across) direction. — (True) False
10. The three directions of communications are up, down, and across. — (True) False





# Communication

# "Making Requests"

***Remember: Be Polite and Considerate of Others***

What? When? Why?

Requests are persuasive communications. Often times when making requests, people tend to beat around the bush leading gradually to the point of the communication. Requests should be stated in an efficient and polite manner. You should state **what** is wanted in the first sentence or two and then state **when** and **why** it is wanted.

**NOTE:** Always be polite and considerate when making any request. Depending on the nature of the request, approval cannot always be granted.

Read the following scenarios and decide which way you think would be the best way for Betty to have made her request. In both scenarios, Betty's Aunt Mary died and she wants time off to attend the funeral. The company where Betty is employed has the same funeral leave policy as Fieldcrest Cannon. The policy allows paid time off for absence caused by the death of the following relatives: husband, wife, son, daughter, father, mother, brother, sister, grandfather, grandmother, grandson, granddaughter, father-in-law, mother-in-law, brother-in-law, and sister-in-law. However, Betty does not have a family and was raised by her Aunt Mary.

**Scenario 1**

Boy, it sure has been hot this summer. It has really been a long summer. We have worked overtime and on weekends, but I really like working here. You know, I like working here so much that in the year that I have been working here, I have never missed a day of work. I know that the company rule does not allow for you to take funeral leave to attend a funeral for an aunt. But, you know, I don't have a mother or father, brother, or sister. So, I guess I don't qualify for paid time off. Did you ever meet my Aunt Mary? I lived with her from the time my parents died until I was grown. Well, anyway, Aunt Mary died yesterday. I don't suppose there is any way I could be off tomorrow to go to the funeral.

**Scenario 2**

My Aunt Mary died yesterday. Her funeral is tomorrow and I would really appreciate being allowed to take tomorrow off to attend. I realize that our company's funeral leave policy does not include time off for the funeral of an aunt. However, since I do not have a family, and was raised by Aunt Mary, I feel that my situation justifies an exception to the policy. I can make up the time lost by working extra hours, if necessary.

Which do you feel would have been the best way for Bill to have made his request? Why? State your answer in complete sentences.

# "Disagreeing Agreeably"

***Remember the Golden Rule**: "Do Unto Others As You Would Have Them Do Unto You"*

Do you always agree with the opinions of other people? It is seldom possible to be in complete agreement with our peers. There will often times be differences of opinion. One person should be able to disagree with another person without causing bad feelings. The following are ideas that will help you "disagree agreeably."

1. ***State the disagreement simply and factually, being careful not to use emotional words (mad, angry, disgusted).***
2. ***Do not allow the difference of opinion to be personal.***
3. ***Do not criticize the person.***
4. ***Focus on the idea being discussed.***

When you criticize someone, there is the feeling that the person's self-worth is being attacked. We all want to feel that our ideas are worthwhile. The surest way to destroy communication channels is to destroy the self-dignity of the person with whom you disagree. Do not criticize the ***person*** with whom you are in disagreement. Focus on the ***idea*** being discussed.

Which of the following statements do think would work best?

Jane, that is the dumbest idea I have ever heard.

Jane, I have an idea that might work.

Always concentrate on disagreeing with the ***idea***, not the ***person***. This will avoid hard feelings.

# Handling Disagreements on the Job

Think of a time that you disagreed with a co-worker or with your supervisor.

How did you handle the disagreement?

Do you think you will handle it differently the next time a disagreement occurs?

List several of the suggestions that were made during our class in the space below.

## COMMUNICATION WORD SEARCH

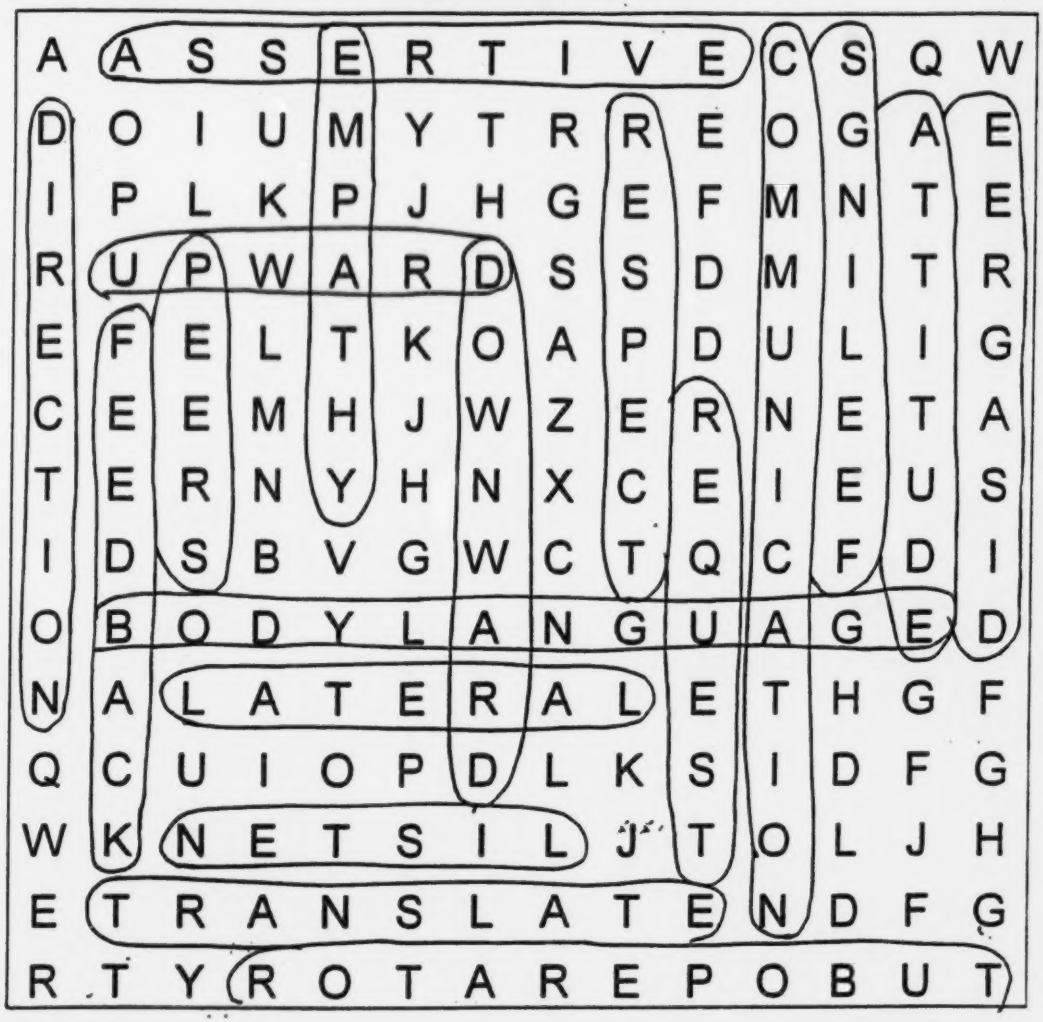
**Find the words at the bottom of the page in the puzzle. Put a circle around each word. Be sure to look up, down, across, and diagonally for the words.**

| A | A | S | S | E | R | T | I | V | E | C | S | Q | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | O | I | U | M | Y | T | R | R | E | O | G | A | E |
| I | P | L | K | P | J | H | G | E | F | M | N | T | E |
| R | U | P | W | A | R | D | S | S | D | M | I | T | R |
| E | F | E | L | T | K | O | A | P | D | U | L | I | G |
| C | E | E | M | H | J | W | Z | E | R | N | E | T | A |
| T | E | R | N | Y | H | N | X | C | E | I | E | U | S |
| I | D | S | B | V | G | W | C | T | Q | C | F | D | I |
| O | B | O | D | Y | L | A | N | G | U | A | G | E | D |
| N | A | L | A | T | E | R | A | L | E | T | H | G | F |
| Q | C | U | I | O | P | D | L | K | S | I | D | F | G |
| W | K | N | E | T | S | I | L | J | T | O | L | J | H |
| E | T | R | A | N | S | L | A | T | E | N | D | F | G |
| R | T | Y | R | O | T | A | R | E | P | O | B | U | T |

ASSERTIVE
ATTITUDE
BODY LANGUAGE
COMMUNICATION
DIRECTION
DISAGREE
DOWNWARD
EMPATHY
FEEDBACK
FEELINGS
LATERAL
LISTEN
PEERS
REQUEST
RESPECT
TRANSLATE
TUB OPERATOR
UPWARD

## COMMUNICATION WORD SEARCH

**Find the words at the bottom of the page in the puzzle. Put a circle around each word. Be sure to look up, down, across, and diagonally for the words.**


A A S S E R T I V E C S Q W
D O I U M Y T R R E O G A E
I P L K P J H G E F M N T E
R U P W A R D S S D M I T R
E F E L T K O A P D U L I G
C E E M H J W Z E R N E T A
T E R N Y H N X C E I E U S
I D S B V G W C T Q C F D I
O B O D Y L A N G U A G E D
N A L A T E R A L E T H G F
Q C U I O P D L K S I D F G
W K N E T S I L J T O L J H
E T R A N S L A T E N D F G
R T Y R O T A R E P O B U T

- ASSERTIVE
- ATTITUDE
- BODY LANGUAGE
- COMMUNICATION
- DIRECTION
- DISAGREE
- DOWNWARD
- EMPATHY
- FEEDBACK
- FEELINGS
- LATERAL
- LISTEN
- PEERS
- REQUEST
- RESPECT
- TRANSLATE
- TUB OPERATOR
- UPWARD

# Communications 2

**Module: Communication - Lesson Two** **Overall Time: 1 hour**
**Job Title: Yardage Binder Operators** 

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Upon completion of the lesson, learners will be able to list and describe with 100% accuracy, five ways to improve their communication skills. | **Motivational Activity:** Display overhead transparency "What do you see?" Display overhead transparency "Which circle is larger?" Discuss perception. | 5 min | Transparency "What do you see?" "Which circle is larger?" | Teacher observation |
| | **Pre-Assessment**: "Rate Yourself" (Attachment A) | 5 min | Attachment A | Students will score their own survey using scale at bottom of page |
| | **Teach Vocabulary:** Use overhead transparency (Attachment B) to present and discuss vocabulary words. | 5 min | Attachment B | Teacher observation of understanding |
| | **Instructional Activities**: Use overhead transparency (Attach. C) and discuss 5 steps to better communication | 25 min. | Attachment C | |
| | Attachments D, E, F, G. Discuss hearing and listening. Complete worksheet G | | Attachments D, E, F, and G | |

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| | **Instructional Activities: (Continued)**<br>Discuss body language (Attachment H). Divide into groups and complete Attachment I. | | Attachments H, and I | |
| | Again using Attachment C, discuss step 3 (Empathy) | | Attachment C | |
| | Using Attachment C, discuss step 4 (Assertiveness) | | Attachment C | |
| | Using overhead transparency (Attach. J), discuss importance of treating others with respect. | 10 min | Attachment J | Teacher observation of responses. |
| | **Evaluation:**<br>Ask for volunteers to name the five steps discussed during the class and list these on a flip chart or board. | 10 min | Flip chart or dry erase board and markers or chalk board and chalk. | Teacher observation. |
| | Distribute Attachment K. Allow learners to evaluate ways to improve their communication based on survey completed at beginning of class. | | Attachment K | |

# FIELDCREST CANNON

**Job Title**: Yardage Binder Operator

**Module**: Communication Skills
Lesson Two

**General Instructional Objective:** Identify methods of achieving better communication.

**Specific Instructional Objective:** Upon completion of the lesson, learners will be able to list and describe with 100% accuracy five ways to improve their communication skills.

**Motivational Activity:** Distribute handout "What do you see?" Show overhead and ask for volunteers to describe what they see in the picture.

Did anyone see angels?
Did anyone see bats or devils?

Distribute handout "Which circle is larger?" Show overhead and ask for volunteers to decide which circle appears to be the largest.

Discuss the fact that different people see things differently. What is seen in the picture depends on focus. Point out that in communication, the receiver may interpret the sender's message in a different way than it was intended.

It is important to remember that messages consist of ***feelings*** and ***attitudes***, in addition to facts. Instructor will stress that we communicate in many different ways.

**Pre-Assessment**: Have learners complete Attachment A, "Rate Yourself".

**Teach Vocabulary**: Instructor and learners will go over and discuss the meaning of vocabulary words. Instructor will use overhead transparency to present vocabulary words. (Attachment B).

| | | |
|---|---|---|
| Empathy | Attitude | Body Language |
| Feedback | Assertive | |

**Instructional Activities:**

Instructor will use overhead transparency (Attachment C) listing 5 steps to better communication and discuss with learners ways to improve their communication skills. Discussion will include how yardage binder and service operators might interact with each other, as well as with supervisors. In guiding the discussion, instructor might ask the following questions:

Do you try to put yourself in the other person's place to see how he/she might feel?
Are you conscious of your attitude toward the other person?
Are you assertive?
Do you pay attention to body language?
Do you listen for feedback? Do you provide feedback?

Read aloud "Did You Know". Allow time for comments. Instructor will discuss with learners the difference in ***hearing*** and ***listening.***

Discuss with learners the process of effective listening to learn a procedure. Read the eight points listed. Discuss how these eight points are important when learning a new procedure. New technology requires learning new procedures.

Teacher will lead discussion on 3 types of distractions and 3 levels of listening intensity. Ask for volunteers to give their own examples.

Allow learners time to complete the worksheet (Attachment G). Following completion of Attachment G, discuss learners' answers.

Discuss second step to better communication (Body Language). Instructor may wish to use overhead (Attachment C) to reinforce the 5 steps. Ask for volunteers to tell what the gestures mean. Discuss how different gestures may have different meaning to different people.

Choose two or three of the gestures listed on Attachment I and demonstrate these to the class. Following the demonstration, allow learners a few minutes to try to complete the worksheet. Instructor will then read each gesture and ask for volunteers to give correct answers. Learners will correct their own papers.

Instructor will again use overhead transparency (Attachment C) and discuss step 3 (Develop the trait of empathy) and step 4 (Use assertiveness). Refer learners to vocabulary words (Attachment B) to review the meaning of empathy. Point out that when you understand the other person's point of view, you will improve your communication with that person.

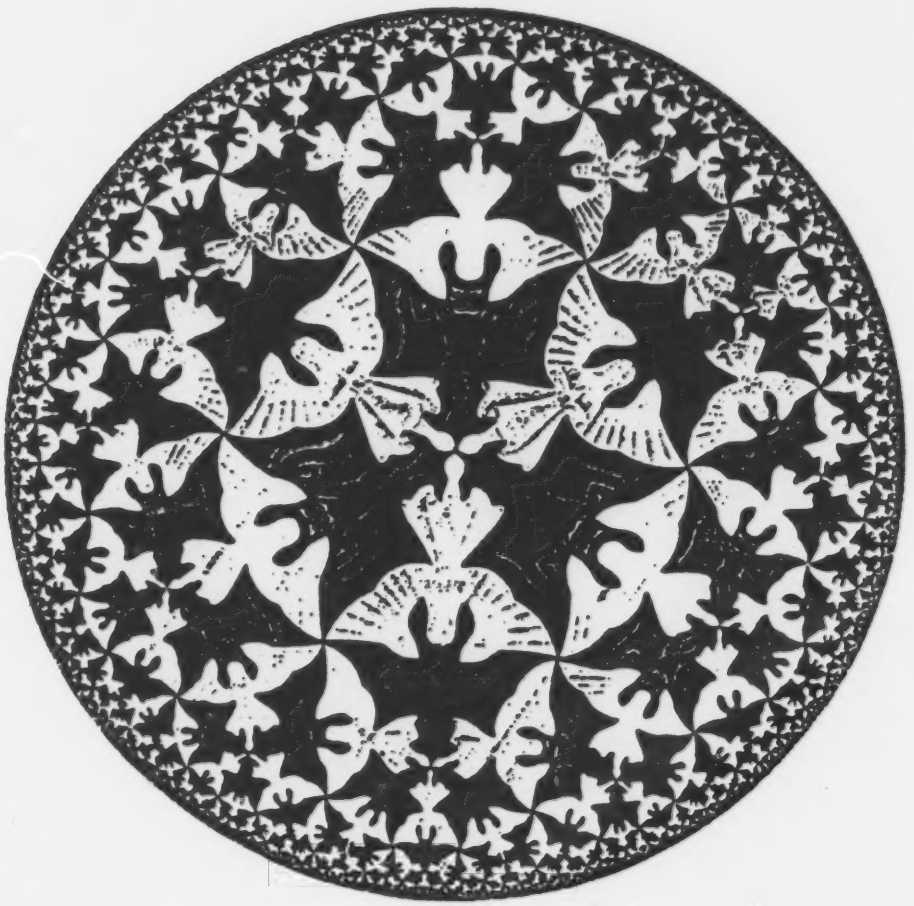
Refer learners to vocabulary words (Attachment B) for meaning of assertiveness. Reinforce the idea that assertiveness means being direct, open, and honest, but not violating the rights of others. It does not mean you should be aggressive in getting your message across.

Instructor will use overhead transparency (Attachment J). Discuss with learners the importance of treating others with respect.

**Evaluation:** Ask for volunteers to name the five steps to better communication. Use flip chart or dry erase board to list the 5 steps.

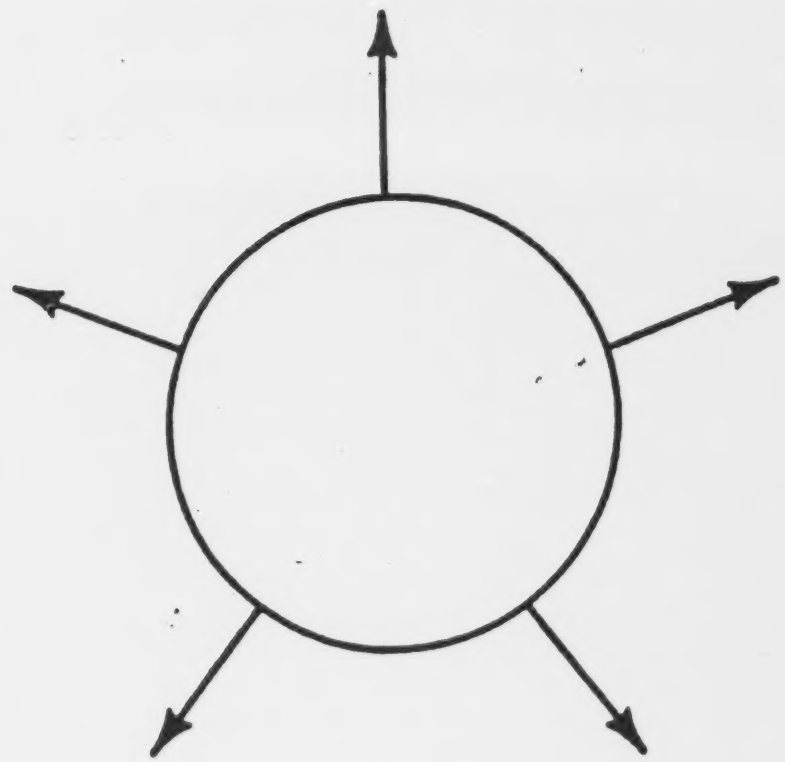
Ask learners to refer to Attachment A (Rate Yourself) that was completed at beginning of class. In the space provided, ask learners to list ways they could improve communication with co-workers and supervisors.

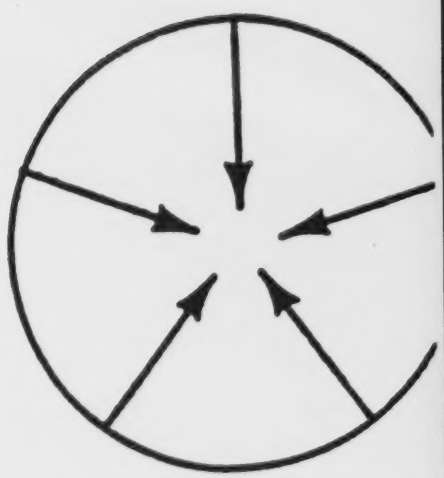
# LOOK AT THE PICTURE BELOW.
# WHAT DO YOU SEE?



Source: Romanek, Elizabeth, Communication Skills that Work, Book Two, Contemporary Books, Chicago, Illinois, 1991.

**LOOK AT THE CIRCLES BELOW.**
**WHICH CIRCLE IS LARGER?**





Attachment A

# RATE YOURSELF

## How Well Do You Communicate?

Communication is giving and receiving of information. You can communicate in many different ways. You are communicating when you give or receive messages, ideas, or feelings. Communication can be written, verbal, or nonverbal. Effective communication only takes place when the receiver understands the sender's message. Rate how well you feel you communicate by reading each statement and choosing the number that best describes the way you communicate.

| | Never | Seldom | Sometimes | Usually | Always |
|---|---|---|---|---|---|
| 1. I ask questions when I do not understand. | 1 | 2 | 3 | 4 | 5 |
| 2. I watch for body language. | 1 | 2 | 3 | 4 | 5 |
| 3. I give clear directions. | 1 | 2 | 3 | 4 | 5 |
| 4. My requests are respectful. | 1 | 2 | 3 | 4 | 5 |
| 5. I state my opinions effectively. | 1 | 2 | 3 | 4 | 5 |
| 6. I appreciate other people's opinions. | 1 | 2 | 3 | 4 | 5 |
| 7. I appreciate constructive criticism. | 1 | 2 | 3 | 4 | 5 |
| 8. I express a genuine interest when listening to others. | 1 | 2 | 3 | 4 | 5 |
| 9. I allow others to speak without interrupting. | 1 | 2 | 3 | 4 | 5 |
| 10. I avoid becoming hostile when I disagree with a co-worker. | 1 | 2 | 3 | 4 | 5 |

Total your responses. If your score is:

| | | | |
|---|---|---|---|
| 46-50 | Excellent | 31-35 | Fair |
| 41-45 | Good | 26-30 | Needs Improvement |
| 36-40 | Average | 25 or less | Serious Problem Exists |

# VOCABULARY WORDS

Empathy – Showing you understand and relate to another's feelings without making his/her feelings or problems your own; being sincerely interested in and concerned about other people.

Attitude – A feeling or emotion toward a fact or a statement.

Feedback – The transmission of evaluative information to the original source.

Assertive – Direct, open, and honest communication that does not violate the rights of others.

Body Language – Nonverbal communication utilizing details such as facial expression, gestures, eye contact, and touching to give meaning to messages.

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# 5 STEPS TO BETTER COMMUNICATION

1. **Be a good listener**

2. **Be aware of body language**

3. **Develop the trait of empathy**

4. **Use assertiveness**

5. **Treat others with respect**

## DID YOU KNOW?????

The average person spends 8.4% of communication time writing, 13.3% reading, 23% speaking, and 55% listening.

**Source: Schultz, Duane P., Sydney Ellen Schultz, Psychology and Work Today, Sixth Edition, Macmillian Company, New York, NY, 1994.**

It has been proven that the ability to listen is one of the most important factors for success on the job. Listening is important in all jobs at all levels in an organization.

One problem is that people confuse ***listening*** with ***hearing***. These are two completely different processes. Many problems and misunderstandings occur because people say they are listening when they are really only hearing. They hear sounds, but remember very little of what they hear because they are not consciously listening.

**Hearing** is a mechanical process and does not involve the active use of the brain. A person can hear noise but does not have to think about it. Hearing does not require mental concentration.

**Listening** requires the active use of the brain. Not only must a person hear the sound, but must evaluate and understand it. Listening requires mental concentration.

Research studies have shown the following:

- Most people listening to a 10 minute speech retain only 25% of what they hear.
- People remember only 50% of what was said immediately after hearing it.
- Two months after listening to a presentation, a person will retain only 25% of the information.
- In the first 8 hours after listening to a new idea, people forget from 1/3 to 1/2 of what was learned.

# Listening to Learn a Procedure

- Focus your attention. Screen out distractions and control daydreaming.
- Identify the topic. Find out the procedure to be explained.
- Summon up your background knowledge. Keep in mind what you may already know about the procedure.
- Grasp the main ideas. Be sure you hear and understand each step of the procedure.
- Listen for the order of the steps. Usually, the speaker will present the steps in the order in which they must be done. The speaker will use words like *First* and *Next* as signals. However, some steps may be presented out of order. Be especially alert when the speaker says something like "Before you do this step, you should..." or "Do not complete this step unless you have..."
- Visualize the message. As you listen, try to picture each step of the procedure. Often the speaker will actually demonstrate the process. In this case, try to form and store away mental pictures of the demonstration.
- Check your understanding. As questions when you are not sure you understand a step. When you have heard all the instructions, restate them in your own words.
- Take notes. Whenever possible, briefly jot down the steps of the procedure and any points the speaker emphasizes.

Source: Romanek, Elizabeth, Communication Skills that Work, Book Two, Contemporary Books, Chicago, IL, 1991.

Attachment E
(Transparency)

# Listening to Learn a Procedure

- Focus your attention.
- Identify the topic.
- Summon up your background knowledge.
- Grasp the main ideas.
- Listen for the order of the steps.
- Visualize the message.
- Check your understanding.
- Take notes.

Source: Romanek, Elizabeth, Communication Skills that Work, Book Two, Contemporary Books, Chicago, IL, 1991.

## The following three types of distractions can affect listening:

***External distractions*** - This refers to the physical environment. It may be too hot or cold, too noisy, or the person speaking may be too far away.

***Internal distractions*** - This refers to internal conflict that causes concentration to be interrupted. An example of an internal distraction would be a argument or problem at home that may hinder your ability to concentrate.

***Speaker distractions*** - The characteristics of the speaker can affect your ability to concentrate. If the speaker speaks in a monotone or is not well organized it will affect your level of listening. These distractions can cause you to become a ***hearer*** rather than a ***listener***.

## There are three levels of listening intensity:

***Casual listening*** - People engage in casual listening most of the time. An example would be listening to music on the radio or casual conversation with a friend.

***Attentive listening*** - People listen attentively when they really need to learn something or if something very important is being said. An example of attentive listening would be listening to your supervisor describe how you could earn more money. You would listen attentively!

***Critical listening*** - This is the most demanding degree of listening. The listener must not only concentrate, but he or she must analyze and evaluate what is being said. An example of this type of listening would be listening to someone explain the pros and cons of two different insurance plans being offered to company employees. After hearing the presentation, he or she would be expected to choose the plan that best suits his/her needs.

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## *Now Let's Practice...*

**Write down an example of each of the three types of distractions that may occur on your job (External, Internal, and Speaker).**

1. **External –** _____

_____

2. **Internal –** _____

_____

3. **Speaker –** _____

_____

**List three situation where you would use the different levels of listening (Casual listening, Attentive listening, and Critical Listening).**

1. **Casual –** _____

_____

2 **Attentive –** _____

_____

3. **Critical –** _____

_____

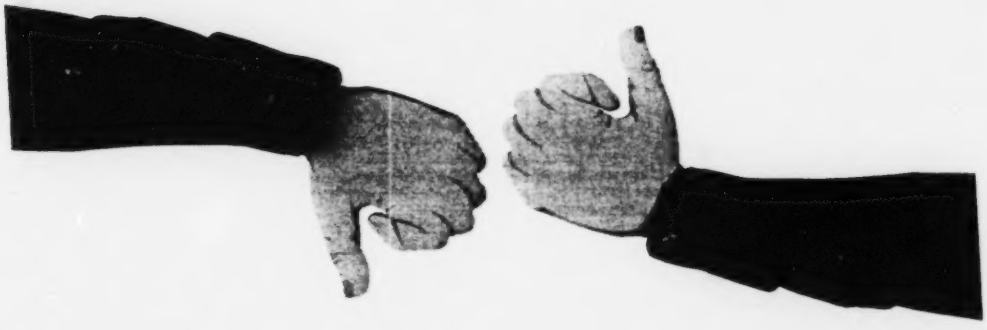
***Although it has been proven that listening is the most important of all the communication skills, there are other skills that help improve communication.***

# BODY LANGUAGE

Actions sometimes speak louder than words. Paying attention to gestures of others and becoming aware of the your own body language will help improve your ability to communicate.

Can you identify these gestures?

_____ _____



_____ _____

Match the following gestures with the correct meaning. Place the letter of the correct meaning in the space provided.

| Gesture | Meaning |
|---|---|
| ____ Clenched fist | A. I do not like what I am hearing; a negative reaction |
| ____ Touching nose with index finger | B. Nervous and tense |
| ____ Rubbing the ear or side of the face | C. Under stress |
| ____ Arms folded high across the chest | D. Bored; impatient |
| ____ Tapping fingers on table | E. Unsure; thinking things over |
| ____ Rubbing back of neck with hand | F. Doubt what is being said |
| ____ Head resting on palm of hand | G. Accusing someone |
| ____ Pointing index finger | H. Defensive; closed mind |
| ____ Legs crossed | I. Tired or thinking deeply |
| ____ Rubbing hands together | J. Anticipating something good is about to happen |

Match the following gestures with the correct meaning. Place the letter of the correct meaning in the space provided.

| Gesture | Meaning |
|---|---|
| __C__ Clenched fist | A. I do not like what I am hearing; a negative reaction |
| __A__ Touching nose with index finger | B. Nervous and tense |
| __F__ Rubbing the ear or side of the face | C. Under stress |
| __H__ Arms folded high across the chest | D. Bored; impatient |
| __D__ Tapping fingers on table | E. Unsure; thinking things over |
| __E__ Rubbing back of neck with hand | F. Doubt what is being said |
| __I__ Head resting on palm of hand | G. Accusing someone |
| __G__ Pointing index finger | H. Defensive; closed mind |
| __B__ Legs crossed | I. Tired or thinking deeply |
| __J__ Rubbing hands together | J. Anticipating something good is about to happen |

# Do Unto Others As You Would Have Them Do Unto You

***With practice, you can improve your communication skills!***

Look at the handout "Rate Yourself". If your answers to any of the questions were seldom or never, reread those statements. What steps could you take to change those habits?

In the space below, list some ways you feel you could improve communication with co-workers and supervisors.

1. _____

2. _____

3. _____

4. _____

5. _____

*Now that you have identified some areas of communication in which you feel you need to improve, try to put some of the ideas we have discussed into practice!*

# Safety

**Module: Safety** **Overall Time 2 hours**

**Job Title: Yardage Binder Operators** 

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Employees will be able to read and interpret general safety procedures, signs, and posters with 100% accuracy. | **Motivational Activity:** Divide class into groups and distribute paper bag containing several unknown articles to each group. | 10 min | Paper bags, several small articles such as silly putty, yarn, string, candy, etc. | Participation |
| | **Vocabulary:** Class will work together to obtain definitions (Attach A). Students and teacher will share definitions orally and agree or disagree by thumbs up or thumbs down. | 10 min | Attachment A, Overhead Projector, transparency | Participation |
| | **Instructional Activities:** The instructor will lead a discussion on the safety procedure of the binder operators (Attach B). The instructor will work with the learners in completing. | 15 min | Attachment B, Paper/pencil | Instructor checks for understanding |
| | Distribute Attach C. After students complete the class will review answers orally. | 10 min | Attachment C, Paper/pencil | |
| | Distribute safety guidelines Attach D. Brainstorm for suggestions. | 20 min | Attachment D, Blackboard/ markers | Completion of worksheet |

**Module: Safety**
**Job Title: Yardage Binder Operators**



| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| | Distribute Attach E. Students will work the safety worksheets in small groups. | 10 min | Attachment E | Teacher observation of student participation and understanding |
| | Distribute Attach F. Students will independently work safety worksheets. | 10 min | Attachment F | |
| | Distribute supplemental reading to the class. | 10 - 15 min | Reading material | |
| | Distribute Attach G. Students will work the safety crosswords. | | Attachment G | |

**Job Title: Yardage Binder Operators**

**Module: Safety**

**General Instructional Objective:** Read and interpret basic safety procedures at job site.

**Specific Instructional Objective:** Employees will be able to read and interpret general safety procedures, signs, and precautions with 100% accuracy.

**Motivational Activity:**

The instructor will divide class into groups and distribute one paper bag containing several unknown articles to each group. Each employee will put their hand in the bag and try to guess what the bag contains.

Employees will then have a discussion on what they believed to be in the bag. The instructor will show employees the actual articles that are in the bag. (Examples of articles in bag - silly putty, emery board, licorice, string, gum, etc.). Discuss how employees felt about putting their hand into an unknown area.

The instructor will explain that we all need to be aware of potential hazards at the workplace. Stress the fact that putting your hands freely into an unknown environment could be hazardous to you or your fellow employees.

**Vocabulary:**

Instructor will distribute vocabulary words and definitions (Attachment A) on index cards. Each student will receive an index card. The students will match their index card with correct word or definition. The class will display the words and definitions on the wall. This activity will be done as a whole group activity.

**Instructional Activities:**

Distribute a copy of the Binders Job Safety Analysis Sheet (Attachment B) to each student. Explain that this safety sheet is specifically designed for the binder operators. Have students read the Binders Job Safety Analysis Sheet silently. Upon completion of reading material, distribute handout questions that relate to the safety of Binder Operators (Attachment C). Allow time for students to work in pairs to complete worksheets.

**Guided Practice:**

Distribute safety guidelines (Attachment D). Students will read material independently. then brainstorm in small groups for ways to reduce accidents. The teacher will list ideas on the board. The teacher will explain and reinforce the concept that prevention, precaution, and awareness are all necessary to maintain a safe work environment. Have students work in small groups to complete teacher made activities that pertain to safety guidelines and warning signs used throughout the workplace. (Attachments E, pages 1, 2, and 3).

**Independent Practice**:

Give each student a teacher-made activity (Attachment F) to complete using work place vocabulary safety words. Upon completion of activity, students and instructor will review the worksheet to reinforce and evaluate comprehension. If time allows distribute crossword puzzle (Attachment G) to be completed as reinforcement of vocabulary safety words.

**Evaluation:**

The teacher will evaluate the lesson according to class participation/observation.

# Glossary

**Protective Gear** - Clothing and equipment that protects a worker from hazards.

**Warning Labels** - Information on a label that tells what may happen if a product is not used correctly.

**Precaution** - A way of being careful before something dangerous happens.

**Safety** - to avoid danger or accidents

**Stress** - body or mental tension

**Protection** - to shield from injury or harm

**Horseplay** - rough or boisterous play

**Housekeeping** - to perform routine duties of maintaining clean work area

# Glossary

**Protective Gear**

**Warning Labels**

**Precaution**

**Safety**

**Stress**

**Protection**

**Horseplay**

**Housekeeping**

# SCOTTSBORO RUG MILL
# SAFETY RULES

1. Failure to follow any safety rule or procedure established for your particular job shall be regarded as negligence in the performance of duties.

2. Smoke only in authorized areas.

3. Report to supervisor any accident occurring on company property and undergo prescribed treatment.

4. Wear goggles, ear protection, hard hats, safety shoes, respirator or other personal protective equipment when required by safety rules.

5. Do not engage in horseplay or scuffling in mill or on company premises.

6. Do not run in mill or on company premises.

7. Do not enter or leave mill or company premises through entrances other than regular doors or gates.

8. Do not spit on floor or throw litter or waste on floor or in yard. Place all trash in trash can.

9. Do not clean, oil or adjust machine in motion unless with specific approval of foreman.

10. Do not commit any act tending to endanger the health, safety or welfare of yourself or any other person.

11. Know and observe all corporate safety policies.

12. Do not block any fire exits, fire extinguishers or fire hoses at anytime.

13. No employee other than electrician or electrical mechanic shall replace fusees or tamper with any electrical boxes or circuits.

14. Employees will use lock-out procedure when working on any equipment.

15. If it is necessary to enter any confined space (such as coater oven or latex tank), employee should notify supervisor and will be issued appropriate protection and instructions at that time. Another employee must be present outside door of oven or tank.

16. If it becomes necessary to use any ladder or safety platform, the employee should check condition of the device to be used and check with immediate supervisor about any special conditions that are present.

17. Do not walk or stand under a lift truck pan or overhead hoist at any time.

18. Do not use air hose to clean off clothing or any part of body.

19. Only authorized employees will use welders -- they must use welding screen and other protective equipment and observe all safety rules which apply to the specific job.

20. When moving any buggy, flat or heavy load such as extractor buggy or coater buggy, these must be pushed.

**DIRECTIONS**: Answer the following questions in the space provided.

1. Describe a potential hazard that you have seen in your work area. _____

_____

_____

_____

2. Describe the proper method to use when placing a creel of binding on the sewing machine.

_____

_____

_____

3. It is a requirement to wear leather, flat, closed toed shoes on the plant floor. Explain the reason why you believe this is a requirement.

_____

_____

_____

4. Explain the correct procedure recommended to blow lint from your machine.

_____

_____

_____

**Attachment C**
**Answer Sheet**

**DIRECTIONS**: Answer the following questions in the space provided.

1. Describe a potential hazard that you have seen in your work area. _____

_____

_____

_____

2. Describe the proper method to use when placing a creel of binding on the sewing machine.

_____

_____

_____

3. It is a requirement to wear leather, flat, closed toed shoes on the plant floor. Explain the reason why you believe this is a requirement.

_____

_____

_____

4. Explain the correct procedure recommended to blow lint from your machine.

_____

_____

_____

# GUIDELINES FOR REDUCING INJURIES AT THE JOB SITE

More than 200,000 people in the United State are injured on the job from slips, trips and falls every year. Slips are caused whenever there is too little friction or traction between your feet and the surface you are walking on. Often moving across a change in surfaces such as walking from a carpeted floor to a vinyl or hardwood floor can cause someone to slip. Trips occur whenever your foot strikes an object and your momentum causes you to be thrown off balance.

## To avoid trips and falls you should make sure that:

Your view is not obstructed

Your work area is free from clutter

Your work area has sufficient lighting

You wear appropriate footwear

## To avoid the chance of injury while working around wet surfaces you should:

Take shorter steps to keep your center of balance under you.

Do not walk to fast in a wet area

Walk with your feet pointed slightly outward, this creates a stable base.

## To avoid back injuries when lifting you should:

Face the object squarely

Get as close as possible to the object

Squat down, bending your knees

Grip the object firmly

Use your legs to bring you to a standing position

Make the lift smoothly

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# GUIDELINES FOR PERSONAL PROTECTIVE EQUIPMENT

Hearing protection is needed when there is a steady or impulse noise which makes it difficult to communicate verbally. A good rule of thumb to know whether you need hearing protection is if you have to raise your voice to be heard by someone less than two feet await.

Earplugs - Offer protection, foam earplugs that fit snugly are the most effective.

You need to protect your ears when:

The sounds in your work area are irritating.

You need to raise your voice to be heard by someone closer than two feet away.

Hearing protection is a necessary defense against hearing loss when you work around loud noise. Noise can slowly destroy your hearing painlessly and without you knowing it.

Footwear - Proper footwear helps prevent injuries on the job.

To avoid foot injuries all associates are required to wear closed toe shoes. High heeled shoes are not allowed on the mill floor. Shoes made out of leather are required to reduce the risk of injury.

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# SAFETY GUIDELINES TO PREVENT BACK INJURIES

Face the object squarely and get as close to it as you can.

Balance yourself solidly, with your feet slightly apart.

Squat down, bending your knees.

Keep your back as straight and upright as possible.

Grip the object firmly.

Tighten your abdomen.

Use your legs to bring you to a standing position, keeping your back straight.

Make the lift smoothly and under control.

Don't lift object over your head.

Don't twist your body when lifting or setting an object down.

Pace yourself to avoid fatigue.

Don't reach over something to life a load.

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# Binder Operators

Binder operators are exposed to many different types of safety hazards. List three potential safety hazards that are unique to your work area.

1. _____

2. _____

3. _____

Number the following binder activities in order in which they occur.

_____ a. Bind Rug

_____ b. Service Operator puts ticket on stack of rugs

_____ c. Be aware of safety haards when you are cutting your thread.

_____ d. Fill out time sheet and checks tickets.

_____ e. Grab Rug

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# MATCHING ACTIVITY
# WARNING SIGNS AND MESSAGES

**Directions: Place letter in blank next to corresponding meaning.**

_____ Ear Protection Required

_____ Emergency Exit

_____ Eye Protection Required

_____ Danger Confined Space

_____ Lockout-Tagout

_____ Pinch Points

_____ Caustic

_____ Acids

_____ Hot Surface

_____ Slippery When Wet

A


B


C


D


E


F


G


H


I


J




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**DIRECTIONS:** Read each statement below then circle the correct answer.

## SAFETY WORKSHEET

| | | |
|---|---|---|
| 1. True | False | The muscles of the abdomen help support the back. |
| 2. True | False | You should exhale completely before lifting anything. |
| 3. True | False | Pushing a load is easier on the back than pulling one. |
| 4. True | False | For a safe lift, the load should be held as close to you as possible. |
| 5. True | False | Hearing loss is a common workplace injury. |
| 6. True | False | Most of the power for lifting should come from your leg muscles. |
| 7. True | False | When pulling an object, you should bend your knees but not your waist. |
| 8. True | False | For personal protective equipment to protect you, it must be used properly. |
| 9. True | False | Heavy objects should be stored off the floor when possible. |
| 10. True | False | Permanent hearing loss is likely to occur only when someone is exposed to painful noise levels. |
| 11. True | False | Poor lighting can create a safety hazard. |
| 12. True | False | Signs in your workplace requiring hearing protection are only for people who have hearing problems. |
| 13. True | False | Exposure to unwanted sound can be controlled. |

**DIRECTIONS:** Read each statement below then circle the correct answer.

## SAFETY WORKSHEET

| | | | |
|---|---|---|---|
| 1. | **True** | False | The muscles of the abdomen help support the back. |
| 2. | **True** | False | You should exhale completely before lifting anything. |
| 3. | **True** | False | Pushing a load is easier on the back than pulling one. |
| 4. | **True** | False | For a safe lift, the load should be held as close to you as possible. |
| 5. | **True** | False | Hearing loss is a common workplace injury. |
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| 11. | **True** | False | Poor lighting can create a safety hazard. |
| 12. | True | **False** | Signs in your workplace requiring hearing protection are only for people who have hearing problems. |
| 13. | **True** | False | Exposure to unwanted sound can be controlled. |

# READING COMPREHENSION

## Safety Worksheet

The following words pertain to your job safety:

| | | | |
|---|---|---|---|
| Automatic Knife | Protective gear | Warning Labels | Steam |
| Pinch Point | Hazard | Precaution | Caustic |
| Housekeeping | LockOut-Tag Out | | |

**DIRECTIONS**: Read the definitions below. Place the vocabulary word on the line in front of the correct definition.

1. _____ A way of being careful before something dangerous happens.

2. _____ Clothing and equipment that protects a worker from hazards.

3. _____ A device that allows you to cut automatically.

4. _____ Danger zones that are formed between a moving object and a stationary object, or between two continuously moving objects.

5. _____ A danger, a risk.

6. _____ Information on a label that tells what may happen if the product is not used correctly.

7. _____ A vapor arising from a heated substance.

8. _____ To perform routine duties of maintaining clean work areas.

9. _____ Capable of destroying by chemical action.

10. _____ Necessary whenever service or maintenance is performed around any machine where an injury may occur.

# READING COMPREHENSION

## Safety Worksheet

The following words pertain to your job safety:

| | | | |
|---|---|---|---|
| Automatic Knife | Protective gear | Warning Labels | Steam |
| Pinch Point | Hazard | Precaution | Caustic |
| Housekeeping | LockOut-Tag Out | | |

**DIRECTIONS**: Read the definitions below. Place the vocabulary word on the line in front of the correct definition.

1. **precaution** _____ A way of being careful before something dangerous happens.

2. **protective gear** _____ Clothing and equipment that protects a worker from hazards.

3. **automatic knife** _____ A device that allows you to cut automatically.

4. **pinch point** _____ Danger zones that are formed between a moving object and a stationary object, or between two continuously moving objects.

5. **hazard** _____ A danger, a risk.

6. **warning labels** _____ Information on a label that tells what may happen if the product is not used correctly.

7. **steam** _____ A vapor arising from a heated substance.

8. **housekeeping** _____ To perform routine duties of maintaining clean work areas.

9. **caustic** _____ Capable of destroying by chemical action.

10. **lock out - tag out** _____ Necessary whenever service or maintenance is performed around any machine where an injury may occur.

# SAFETY WORD SEARCH PUZZLE

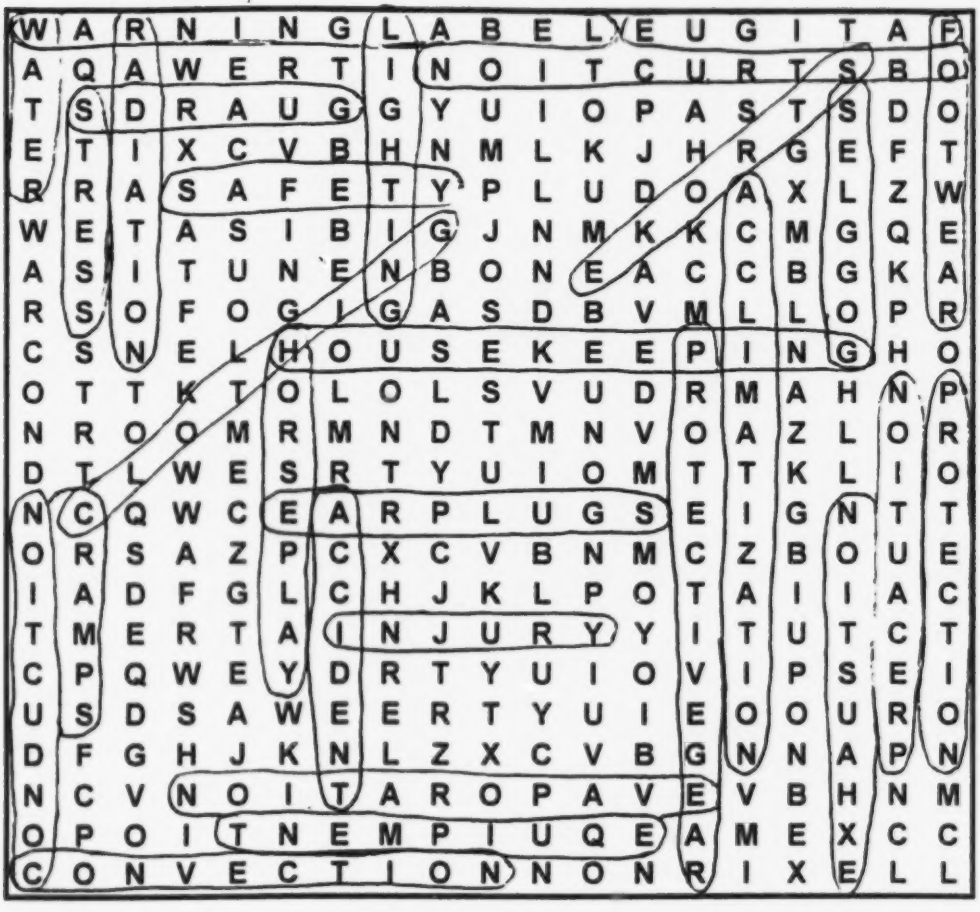
**Directions:** Find and circle the words listed below in the puzzle.

| W | A | R | N | I | N | G | L | A | B | E | L | E | U | G | I | T | A | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Q | A | W | E | R | T | I | N | O | I | T | C | U | R | T | S | B | O |
| T | S | D | R | A | U | G | G | Y | U | I | O | P | A | S | T | S | D | O |
| E | T | I | X | C | V | B | H | N | M | L | K | J | H | R | G | E | F | T |
| R | R | A | S | A | F | E | T | Y | P | L | U | D | O | A | X | L | Z | W |
| W | E | T | A | S | I | B | I | G | J | N | M | K | K | C | M | G | Q | E |
| A | S | I | T | U | N | E | N | B | O | N | E | A | C | C | B | G | K | A |
| R | S | O | F | O | G | I | G | A | S | D | B | V | M | L | L | O | P | R |
| C | S | N | E | L | H | O | U | S | E | K | E | E | P | I | N | G | H | O |
| O | T | T | K | T | O | L | O | L | S | V | U | D | R | M | A | H | N | P |
| N | R | O | O | M | R | M | N | D | T | M | N | V | O | A | Z | L | O | R |
| D | T | L | W | E | S | R | T | Y | U | I | O | M | T | T | K | L | I | O |
| N | C | Q | W | C | E | A | R | P | L | U | G | S | E | I | G | N | T | T |
| O | R | S | A | Z | P | C | X | C | V | B | N | M | C | Z | B | O | U | E |
| I | A | D | F | G | L | C | H | J | K | L | P | O | T | A | I | I | A | C |
| T | M | E | R | T | A | I | N | J | U | R | Y | Y | I | T | U | T | C | T |
| C | P | Q | W | E | Y | D | R | T | Y | U | I | O | V | I | P | S | E | I |
| U | S | D | S | A | W | E | E | R | T | Y | U | I | E | O | O | U | R | O |
| D | F | G | H | J | K | N | L | Z | X | C | V | B | G | N | N | A | P | N |
| N | C | V | N | O | I | T | A | R | O | P | A | V | E | V | B | H | N | M |
| O | P | O | I | T | N | E | M | P | I | U | Q | E | A | M | E | X | C | C |
| C | O | N | V | E | C | T | I | O | N | N | O | N | R | I | X | E | L | L |

**Accident**
**Acclimatization**
**Clothing**
**Conduction**
**Convection**
**Cramps**
**Earplugs**
**Equipment**
**Evaporation**
**Exhaustion**
**Fatigue**
**Footwear**
**Goggles**
**Guards**
**Horseplay**
**Housekeeping**
**Injury**
**Lighting**
**Obstruction**
**Precaution**
**Protection**
**Protective Gear**
**Radiation**
**Safety**
**Stress**
**Stroke**
**Warning Labels**
**Water**

## SAFETY WORD SEARCH PUZZLE

**Directions:** Find and circle the words listed below in the puzzle.



| | | |
|---|---|---|
| ✓Accident | ✓Exhaustion | ✓Obstruction |
| ✓ Acclimatization | ✓Fatigue | ✓Precaution |
| ✓Clothing | ✓Footwear | ✓Protection |
| ✓ Conduction | ✓Goggles | ✓Protective Gear |
| ✓ Convection | ✓Guards | ✓Radiation |
| ✓Cramps | ✓Horseplay | ✓Safety |
| ✓Earplugs | ✓ Housekeeping | ✓Stress |
| ✓Equipment | ✓ Injury | ✓Stroke |
| ✓ Evaporation | ✓Lighting | ✓Warning Labels |
| | | ✓ Water |

# CONTROLLING HEAT STRESS

High temperatures put stress on our bodies. When the body's cooling system has to work to hard to reduce heat stress, it can strain itself. This physical strain - combined with other stresses such as work, loss of fluids or fatigue - may lead to heat disorders, disability, or even death. Your body always generates internal heat, but the amount of heat that stays stored in your body depends on your:

* Surroundings
* Level of physical activity
* Type of work
* Time spent working
* Recovery time between work periods

You owe it to yourself and your fellow workers to recognize the signs of heat stress and know the proper first aid measures. You can take precautions to prevent heat disorders by the following ways:

## Three Major Heat Disorders

* Acclimatization
* Proper work procedures
* Food and water intake

### Acclimatization:

If you can't control the temperature or humidity in your workplace, you must become acclimatized to it. Acclimatization is the ability to perform maximum amounts of strenuous work in the heat by gradually getting yourself accustomed to the climate you work in.

The first step is to get into good physical condition. Physical work in the heat is necessary for full acclimatization, but it should consist of increasingly longer work periods each day, alternating with rest or lighter work.

Some workers reach full acclimatization within a week, while others take longer. If you go on vacation, remember that you will start losing your resistance to heat after one week and you will lose in completely in a month.

## Work Procedures:

Another important method for reducing the ill effects of heat stress is to follow scheduled work/rest cycles that keep any individual from overdoing it. Workers make alternate light and heavy work indoor and outdoor work, etc. Duties may also be rotated among several workers to protect them from heat, and workload can be adjusted based on body size or physical strength.

## Food and Water Intake:

Most people don't realize that hot foods add directly to body heat. Heavy meals reduce your ability to get rid of heat because they redirect blood flow to your digestive track instead of your skin surface. Be sure your noon meal is light and cool, then try to rest for a while right after eating. Plan on eating your heaviest meal of the day after the workday is over.

The most important step you can take is to replenish water can salt used up by your body's cooling mechanisms. Fluid intake should equal fluid loss throughout the day. Be sure you have enough cool drinking water at your job site and drink 5 to 7 ounces of water every 15 to 20 minutes, even if you don't feel thirsty.

Consuming drinks designed to replace blood fluid and electrolytes is okay, but NEVER drink alcoholic beverages, since alcohol dehydrates the body.

Except when treating heat disorders, salt supplements are not recommended, since too much salt can cause higher body temperature, increased thirst and nausea. The normal diet usually has enough salt in it, but if you sweat continuously or repeatedly, you may use extra salt at the table. Salt tables are considered harmful because the salt doesn't enter your system as fast as water or other fluids.

In addition to the medical hazards of bodily illness or injury caused by heat stress, there is also a higher frequency of accidents in hot environments.

Heat disorders are preventable with proper planning, supervision and training. Steps you can take to cope with the hazards of heat stress include:

* Understanding the effects of heat stress
* Knowing the symptoms and treatment for heat stress disorders
* Taking personal precautions against heat disorders.

# FOUR WAYS FOR THE BODY TO GAIN OR LOOSE HEAT

**Radiation** - transfers heat to or from surrounding objects that are not in direct contact with the body.

**Convection** - transfers body heat to or from air moving over the skin.

**Conduction** - direct contact with objects that are colder or warmer than the body.

**Evaporation** - causes cooling with air absorbs body moisture from the lungs or skin.

# SIGNS OF HEAT STRESS

**Heat Cramps** - Painful cramps of the muscles used while working, such as the arms, legs or stomach.

**Heat Exhaustion** - Occurs when the body's heat control mechanism is overactive but hasn't broken down completely.

**Heat Stroke** - Requires immediate attention. Happens when the body depletes its salt and water supplies, sweating stops and heat loss by evaporation of sweat is blocked.

# FACTORS AFFECTING HEAT STRESS

Some of the factors affecting heat stress are things you can control such as the amount of salt you eat. Physical conditions that can hurt your body's natural ability to withstand high temperatures include:

Dehydration (water loss)

Diarrhea

Exposure to high temperatures

Fatigue

Improper work procedures

Lack of acclimatization

Loss of sleep

Medications

# BINDER
# WORKSHEET

1. Name three symptoms of heat exhaustion? _____

_____

_____

2. What causes a heat stroke? _____

_____

_____

3. Define the word acclimatization. _____

_____

_____

4. List the four ways your body loses heat? _____

_____

_____

5. List three major heat disorders. _____

_____

_____

**Supplemental**
**Answer Key**

# BINDER
# WORKSHEET

1. Name three symptoms of heat exhaustion? **Heavy sweating, intense thirst, weak and rapid pulse, low blood pressure.**

2. What causes a heat stroke? **When the body depletes its salt and water supplies and sweating stops and heat loss by evaporation of sweat is blocked.**

3. Define the word acclimatization. **The ability to perform maximum amount of strenuous work in the heat.**

4. List the four ways your body loses heat? **Radiation, Convection, Conduction, Evaporation**

5. List three major heat disorders. **Cramps, exhaustion and stroke**

## WORD SEARCH

| B | O | B | B | I | N | X | T | D | O | F | F |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Z | Y | U | A | Q | F | S | E | S | I | L |
| L | Y | J | N | Z | I | R | E | D | L | L | U |
| E | T | W | I | S | T | O | P | M | I | M | F |
| W | I | X | F | Y | K | T | Y | S | V | W | F |
| H | L | I | O | I | T | A | T | F | E | O | I |
| G | A | E | R | A | B | T | Q | R | R | U | N |
| U | U | V | M | B | L | E | N | D | I | N | G |
| E | Q | U | A | L | C | S | R | B | Z | D | X |
| P | A | R | A | L | L | E | L | S | J | N | P |
| V | A | R | I | O | U | S | T | R | A | N | D |
| R | O | V | I | N | G | F | R | A | M | E | O |

_____ space used for a special function or purpose
_____ single stringlike piece of something
_____ a reel or spool for holding thread or yarn
_____ machine with many rollers, that changes drawn sliver into roving
_____ tiny, threadlike parts of which cotton is made
_____ mixing two or more things together
_____ to take off
_____ turn
_____ turns in a circle
_____ very thin or sheer
_____ shaking or puffing out
_____ rolled into a ball or onto a spool or bobbin
_____ always the same
_____ side by side, lying in the same direction
_____ separate smaller pieces from larger pieces
_____ ropelike strand of fiber
_____ worth or value
_____ the same
_____ kinds
_____ many or several different kinds

## WORD SEARCH

| B | O | B | B | I | N | X | T | D | O | F | F |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Z | Y | U | A | Q | F | S | E | S | I | L |
| L | Y | J | N | Z | I | R | E | D | L | L | U |
| E | T | W | I | S | T | O | P | M | I | M | F |
| W | I | X | F | Y | K | T | Y | S | V | W | F |
| H | L | I | O | I | T | A | T | F | E | O | I |
| G | A | E | R | A | B | T | Q | R | R | U | N |
| U | U | V | M | B | L | E | N | D | I | N | G |
| E | Q | U | A | L | C | S | R | B | Z | D | X |
| P | A | R | A | L | L | E | L | S | J | N | P |
| V | A | R | I | O | U | S | T | R | A | N | D |
| R | O | V | I | N | G | F | R | A | M | E | O |

| | |
|---|---|
| area | space used for a special function or purpose |
| strand | single stringlike piece of something |
| bobbin | a reel or spool for holding thread or yarn |
| roving frame | machine with many rollers, that changes drawn slivers into roving |
| fibers | tiny, threadlike parts of which cotton is made |
| blending | mixing two or more things together |
| doff | to take off |
| twist | turn |
| rotates | turns in a circle |
| filmy | very thin or sheer |
| fluffing | shaking or puffing out |
| wound | rolled into a ball or onto a spool or bobbin |
| uniform | always the same |
| parallel | side by side, lying in the same direction |
| sift | separate smaller pieces from larger pieces |
| sliver | ropelike strand of fiber |
| quality | worth or value |
| equal | the same |
| types | kinds |
| various | many or several different kinds |

# FRACTIONS

$+ - \times \div$

**Module: Fractions** **Overall Time: 2 Hours**
**Job Title: General/New Hires** **Page 1 of 1**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Learners will complete the fraction unit with 90% accuracy. | **Motivational Activity:**. Display several items (football, money, and a clock). Initiate discussion about using fractions in everyday activities. | 5 min | Ball, Money, and Clock | Discussion |
| | **Vocabulary:** Review vocabulary terms orally and visually using a transparency. | 5 min | Overhead Projector, and Transparency (Attachment A) | Observation |
| | **Instructional Activity:** Instructor will lead discussion relating to using fractions in everyday activities including work. | 5 min | | Participation |
| | **Guided Practice:** Instructor will demonstrate the steps used when working with fractions. | 20 min | | Observation |
| | **Independent Practice:** Learners will work various worksheets involving adding, subtracting, multiplying, and dividing fractions. | 50 min | | Teacher will check for accuracy. |
| | **Evaluation:** Instructor will evaluate by observation. If learners have difficulty the instructor will review each step in detail. | 15 min | | Observation |

## *LOZIER CORPORATION*

**Job Title: General/New Hires**

**Module: Math - Fractions**

**General Instructional Objective:** Learners will be able to identify and use fractions in their work environment..

**Specific Instructional Objective:** Learners will complete the fraction unit with 90% accuracy.

**Motivational Activity:** The instructor will display several items such as a football, money and a clock. Initiate an instructor led discussion about using fractions in everyday activities.

**Vocabulary:** The instructor will review vocabulary terms (Attachment A) orally and visually in order to reinforce knowledge the learners have obtained in previous learning experiences. (Multiplication, Division, Common denominator, Proper fractions, Improper fractions, Mixed numbers, Reciprocals, Equivalent fractions, Nonequivalent fractions, and symbols often used in fractions)

**Instructional Activities:** The instructor will lead a discussion relating to the many ways we use fractions in everyday activities including work. Ask the learners for a few examples that they can think of when you might use fractions at home? At work?

**Guided Practice:** The instructor will demonstrate the steps used when adding, subtracting, multiplying, dividing, changing mixed numbers to improper fractions and comparing fractions by cross multiplying.

**Independent Practice:** The learners will complete various worksheets involving procedures demonstrated in Guided Practice.

**Evaluation:** The instructor will evaluate by observation. If learners have difficulty, the instructor will review each step in detail.

# Vocabulary Terms

| Symbol | Meaning | Example |
|---|---|---|
| = | is equal to | 4 = 4 |
| > | is greater than | 7 > 3 |
| < | is less than | 2 < 9 |
| $\not=$ | not equal | $\frac{1}{2} \not= \frac{3}{4}$ |

**Common denominator** - a number that all the denominators will divide into evenly

Example: $\frac{3}{15}$ $\frac{4}{12}$

**Proper fraction** - a fraction whose numerator is smaller than its denominator

Example: $\frac{4}{6}$ $4 < 6$

**Improper fraction** - a fraction whose numerator is greater than or equal to its denominator

Example: $\frac{4}{4}$ or $\frac{9}{4}$

**Mixed number** - a number with a whole number part and a fractional part

Example: $2\frac{1}{2}$ $5\frac{1}{3}$ $7\frac{1}{8}$ $9\frac{1}{5}$

**Equivalent fractions** - fractions that equal the same value

Example: $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$

**Nonequivalent fractions** - fractions that are not equal

Example: $\frac{1}{2} \neq \frac{3}{4}$

# Adding and Subtracting Like Fractions

Fractions with the same denominator have a **common denominator.** The fractions $\frac{1}{7}$ and $\frac{6}{7}$ have a common denominator of 7. These fractions are also called **like fractions.**

To add like fractions, follow these steps:

**Step 1** Add only the numerators.
**Step 2** Use the same denominator in the answer.
**Step 3** Write the sum in lowest terms.

**Examples**

A $\quad \frac{7}{10} + \frac{1}{10}$

$\frac{8}{10} = \boxed{\frac{4}{5}}$

B $\quad \frac{5}{8} + \frac{7}{8}$

$\frac{12}{8} = 1\frac{4}{8} = \boxed{1\frac{1}{2}}$

To subtract like fractions, follow these steps:

**Step 1** Subtract only the numerators.
**Step 2** Use the same denominator in the answer.
**Step 3** Write the difference in lowest terms.

**Examples**

C $\quad \frac{7}{10} - \frac{1}{10}$

$\frac{6}{10} = \boxed{\frac{3}{5}}$

D $\quad \frac{1}{5} - \frac{1}{5}$

$\boxed{0}$

## Practice

Add or subtract. Write the answers in lowest terms.

$$\frac{3}{11} + \frac{6}{11} = \boxed{\frac{9}{11}}$$

$$\frac{2}{25} + \frac{23}{25} = \boxed{1}$$

$$\frac{3}{8} + \frac{7}{8} = \boxed{1\frac{1}{4}}$$

$$\frac{13}{15} + \frac{1}{15} = \boxed{\frac{14}{15}}$$

$$\frac{13}{16} - \frac{11}{16} = \boxed{\frac{1}{8}}$$

$$\frac{8}{10} - \frac{2}{10} = \boxed{\frac{3}{5}}$$

$$\frac{21}{25} - \frac{16}{25} = \boxed{\frac{1}{5}}$$

$$\frac{5}{6} - \frac{2}{6} = \boxed{\frac{1}{2}}$$

## Adding and Subtracting Unlike Fractions

**Unlike fractions** are fractions with different denominators. Fractions such as $\frac{1}{5}$ and $\frac{3}{10}$ are unlike fractions. Before fractions can be added or subtracted, they must have the same denominator.

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To add unlike fractions, follow these steps:

**Step 1** Find a common denominator.
**Step 2** Add the numerators.
**Step 3** Write the sum in lowest terms.

To subtract unlike fractions, follow these steps:

**Step 1** Find a common denominator.
**Step 2** Subtract the numerators.
**Step 3** Write the difference in lowest terms.

MATH HINT: If the smaller denominator divides evenly into the larger denominator, the larger number is a common denominator. Otherwise, you can multiply the two denominators to get a common denominator.

### Examples

A $\quad \frac{1}{5} = \frac{3}{15}$
$+\frac{1}{15} = \frac{1}{15}$
$\frac{4}{15}$

Since 15 = 5 X 3, 15 is a common denominator.

B $\quad \frac{7}{8} = \frac{21}{24}$
$-\frac{1}{3} = \frac{8}{24}$
$\frac{13}{24}$

Since 3 does not divide evenly into 8, multiply 3 x 8 to get 24 for a common denominator.

## Practice

Add or subtract. Write the answers in lowest terms.

$$\frac{1}{12} + \frac{1}{8} = \boxed{\frac{5}{24}}$$

$$\frac{2}{9} + \frac{1}{4} = \boxed{\frac{17}{36}}$$

$$\frac{3}{10} + \frac{5}{6} = \boxed{1\frac{2}{15}}$$

$$\frac{5}{7} + \frac{2}{5} = \boxed{1\frac{4}{35}}$$

$$\frac{3}{5} - \frac{1}{3} = \boxed{\frac{4}{15}}$$

$$\frac{9}{10} - \frac{3}{4} = \boxed{\frac{3}{20}}$$

$$\frac{5}{7} - \frac{2}{3} = \boxed{\frac{1}{21}}$$

$$\frac{7}{12} - \frac{1}{3} = \boxed{\frac{1}{4}}$$

# ADDING LIKE MIXED NUMBERS

Numbers such as $1\frac{1}{3}$ and $2\frac{2}{3}$ are **like mixed numbers.** Their fractions have common denominators. To add like mixed numbers, follow these steps:

**Step 1** Add the whole numbers.
**Step 2** Add the fractions.
**Step 3** Write the sum in lowest terms.

A $1\frac{1}{3}$ Step 1: $1 + 2 = 3$

$+2\frac{2}{3}$ Step 2: $\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$

$3\frac{3}{3} =$ Step 3: $3\frac{3}{3} = 3 + 1 = 4$

**Add the following and reduce your answers to the lowest terms.**

$8\frac{3}{4}$
$+4\frac{3}{4}$
$13\frac{1}{2}$

$8\frac{7}{10}$
$+1\frac{3}{10}$
10

$7\frac{2}{9}$
$+6\frac{5}{9}$
$13\frac{7}{9}$

$21\frac{11}{18}$
$+21\frac{7}{18}$
43

$3\frac{2}{7}$
$+2\frac{4}{7}$
$5\frac{6}{7}$

$5\frac{4}{9}$
$+2\frac{7}{9}$
$8\frac{2}{9}$

# SUBTRACTING LIKE MIXED NUMBERS

To subtract like mixed numbers, follow these steps:

**Step 1** Subtract the fractions, renaming when necessary.
**Step 2** Subtract the whole numbers.
**Step 3** Write the difference in lowest terms.

**Example A**

$$\begin{array}{r} 7\frac{5}{7} \\ -\,2\frac{4}{7} \\ \hline 5\frac{1}{7} \end{array}$$

**Example B**

$$\begin{array}{rl} 10\frac{4}{9} = 9\frac{9}{9} + \frac{4}{9} = 9\frac{13}{9} & \\ -\,4\frac{5}{9} & = 4\frac{5}{9} \\ \hline & 5\frac{8}{9} \end{array}$$

$\frac{5}{9}$ is greater than $\frac{4}{9}$. To subtract, rename the mixed number, $10\frac{4}{9}$. Use the common denominator to write $10\frac{4}{9}$ as $9 + \frac{9}{9} + \frac{4}{9}$ (the sum of the numerators = $\frac{13}{9}$).

$\frac{13}{9}$ is greater than the subtrahend fraction, $\frac{5}{9}$. **Now subtract.**

**Step 1** $\frac{13}{9} - \frac{5}{9} = \frac{8}{9}$

**Step 2** $9 - 4 = 5$

**Step 3** The difference is $5\frac{8}{9}$

**Subtract the following and reduce your answers to lowest terms.**

$$4\frac{1}{18} - 1\frac{7}{18} = \boxed{2\frac{2}{3}}$$

$$7\frac{3}{24} - 2\frac{11}{24} = \boxed{4\frac{2}{3}}$$

$$20\frac{13}{18} - 4\frac{7}{18} = \boxed{16\frac{1}{3}}$$

$$23\frac{7}{18} - 14\frac{14}{18} = \boxed{8\frac{11}{18}}$$

$$40\frac{1}{4} - 39\frac{3}{4} = \boxed{\frac{1}{2}}$$

$$23 - 13\frac{15}{25} = \boxed{9\frac{2}{5}}$$

$$14\frac{3}{14} - 11\frac{9}{14} = \boxed{2\frac{4}{7}}$$

$$4\frac{1}{18} - 1\frac{7}{18} = \boxed{2\frac{2}{3}}$$

# ADDING UNLIKE MIXED NUMBERS

Numbers such as $3\frac{2}{3}$ and $3\frac{1}{2}$ are **unlike mixed numbers.** They have different denominators. To add mixed numbers with different denominators, follow these steps.

**Step 1** Find a common denominator.
**Step 2** Add the whole numbers.
**Step 3** Add the fractions.
**Step 4** Write the sum in lowest terms.

**Example A**

$$\begin{aligned} 3\frac{2}{3} &= 3\frac{4}{6} \\ +3\frac{1}{2} &= 3\frac{3}{6} \\ \hline 6\frac{7}{6} &= 7\frac{1}{6} \end{aligned}$$

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**Add the following and reduce your answers to lowest terms.**

$$\begin{array}{r} 4\frac{5}{8} \\ 11\frac{7}{16} \\ +13\frac{1}{2} \\ \hline \end{array} \qquad 29\frac{9}{16}$$

$$\begin{array}{r} 2\frac{1}{2} \\ 3\frac{3}{5} \\ +4\frac{4}{15} \\ \hline \end{array} \qquad 10\frac{11}{30}$$

$$\begin{array}{r} 13\frac{1}{2} \\ 10\frac{1}{3} \\ +5\frac{1}{4} \\ \hline \end{array} \qquad 29\frac{1}{12}$$

$$\begin{array}{r} 7\frac{5}{6} \\ 3\frac{1}{3} \\ +8\frac{3}{4} \\ \hline \end{array} \qquad 19\frac{11}{12}$$

$$\begin{array}{r} 3\frac{1}{4} \\ +1\frac{7}{10} \\ \hline \end{array} \qquad 4\frac{19}{20}$$

$$\begin{array}{r} 83\frac{5}{6} \\ +29\frac{7}{8} \\ \hline \end{array} \qquad 113\frac{17}{24}$$

$$\begin{array}{r} 65\frac{1}{5} \\ +33\frac{1}{3} \\ \hline \end{array} \qquad 98\frac{8}{15}$$

$$\begin{array}{r} 5\frac{1}{3} \\ +6\frac{2}{9} \\ \hline \end{array} \qquad 11\frac{5}{9}$$

# SUBTRACTING UNLIKE MIXED NUMBERS

To subtract mixed numbers with different denominators, follow these steps:

**Step 1** Find a common denominator.
**Step 2** Subtract the fractions, renaming when necessary.
**Step 3** Subtract the whole numbers.
**Step 4** Write the difference in lowest terms.

**Example A**

$$15\frac{7}{10} = 15\frac{21}{30}$$
$$-\,8\frac{8}{15} = 8\frac{16}{30}$$

$$7\frac{5}{30} = 7\frac{1}{6}$$

**Subtract the following and reduce your answers to lowest terms.**

$12\frac{3}{7} - 4\frac{2}{3} = 7\frac{16}{21}$

$12\frac{5}{16} - 7\frac{1}{2} = 4\frac{13}{16}$

$18\frac{3}{10} - 13\frac{3}{4} = 4\frac{11}{20}$

$4\frac{1}{8} - 1\frac{3}{6} = 2\frac{5}{8}$

$15\frac{8}{15} - 8\frac{7}{10} = 6\frac{5}{6}$

$7\frac{1}{6} - 2\frac{3}{4} = 4\frac{5}{12}$

$5\frac{3}{8} - 1\frac{7}{12} = 3\frac{19}{24}$

$7\frac{7}{12} - 3\frac{1}{8} = 4\frac{11}{24}$

# MULTIPLYING FRACTIONS

Unlike adding and subtracting fractions, *there is no need for common denominators when you multiply and divide*. In some cases, you will just multiply straight across, multiplying numerator by numerator and denominator by denominator.

**Example 1:** $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$

Other problems can be solved more easily by ***canceling***--reducing a numerator and a denominator divisible by the same factor.

**Example 2** $\frac{6}{15} \times \frac{5}{12}$

**Step 1** The 15 and the 5 can be divided by 5.

$$\frac{6}{\overset{3}{\cancel{15}}} \times \frac{\overset{1}{\cancel{5}}}{12}$$

**Step 2** The 6 and the 12 can be divided by 6.

$$\frac{\overset{1}{\cancel{6}}}{\underset{3}{\cancel{15}}} \times \frac{\overset{1}{\cancel{5}}}{\underset{2}{\cancel{12}}}$$

**Step 3** Multiply straight across.

If necessary, reduce the answer.

$$\frac{1}{3} \times \frac{1}{2} = \boxed{\frac{1}{6}}$$

**TO MULTIPLY FRACTIONS**

1. Reduce numerators and denominators by canceling.
2. Multiply straight across.
3. Be sure your answer is reduced to lowest terms.

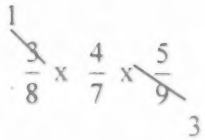
*To multiply by a fraction is to find a part of something.*

Adapted from: Contemporary Books, Number Power Review, 1991.

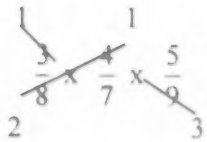
You can also cancel with three fractions. Sometimes you have to "jump" over the middle number.

**Example 3** $\frac{3}{8} \times \frac{4}{7} \times \frac{5}{9}$

**Step 1** Divide both the 3 and 9 by 3.



**Step 2** Divide both the 4 and 8 by 4.



**Step 3** Multiply straight across.

$$\frac{1}{2} \times \frac{1}{7} \times \frac{5}{3} = \boxed{\frac{5}{42}}$$

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**TO MULTIPLY MIXED NUMBERS**

1. Change mixed numbers to improper fractions.
2. Reduce numbers divisible by the same number by canceling.
3. Multiply straight across.
4. Be sure your answer is reduced to lowest terms.

Example 4 below shows a case that involves multiplying mixed numbers.

**Example 4**

**Step 1** Change all mixed numbers to improper fractions. $2\frac{1}{3} \times 3\frac{1}{2} = \frac{7}{3} \times \frac{7}{2}$

**Step 2** Multiply. If the answer is an improper fraction, change it to a whole or mixed number. $\frac{7}{3} \times \frac{7}{2} = \frac{49}{6} = 8\frac{1}{6}$

***Tip: Sometimes you may have to multiply a whole number by a fraction or a mixed number. Rewrite the whole number over 1 and then multiply as usual.***

**MULTIPLYING FRACTIONS**

$\frac{6}{15} \times \frac{5}{12} = \boxed{\frac{1}{6}}$ $\quad 8 \times \frac{3}{4} = \boxed{6}$ $\quad \frac{3}{8} \times \frac{2}{15} \times \frac{6}{7} = \boxed{\frac{3}{70}}$

$8\frac{1}{6} \times 4 = \boxed{32\frac{2}{3}}$ $\quad \frac{5}{9} \times \frac{2}{5} = \boxed{\frac{2}{9}}$ $\quad 2\frac{1}{2} \times 2\frac{1}{3} = \boxed{5\frac{5}{6}}$

$2\frac{3}{4} \times \frac{6}{7} = \boxed{2\frac{5}{14}}$ $\quad 1\frac{3}{10} \times 5 = \boxed{6\frac{1}{2}}$ $\quad 3\frac{3}{8} \times 1\frac{3}{9} \times \frac{2}{3} = \boxed{3}$

## Dividing Fractions by Fractions

To divide a fraction by a fraction, multiply the first fraction by the reciprocal of the second fraction. To find the reciprocal, invert the fraction (turn it upside down).

**Write the reciprocals:** $\frac{1}{2}, \frac{3}{4}$

| Number | Reciprocal |
|---|---|
| $\frac{1}{2}$ | $\frac{2}{1}$ |
| $\frac{3}{4}$ | $\frac{4}{3}$ |

**Find:** $\frac{3}{4} \div \frac{1}{4}$

Invert the second fraction and multiply.

$\frac{3}{4} \div \frac{1}{4} = \frac{3}{4} \times \frac{4}{1} = \frac{3}{1} = 3$

**Write the reciprocals by inverting the fractions.**

$\frac{1}{6}$ ____ $\frac{6}{1}$ $\quad\quad$ $\frac{2}{3}$ ____ $\frac{3}{2}$ $\quad\quad$ $\frac{1}{20}$ ____ $\frac{20}{1}$

$\frac{6}{8}$ ____ $\frac{8}{6}$ $\quad\quad$ $\frac{4}{9}$ ____ $\frac{9}{4}$ $\quad\quad$ $\frac{25}{50}$ ____ $\frac{50}{25}$

**Divide.**

$\frac{2}{9} \div \frac{3}{4} = \frac{8}{27}$ $\quad\quad$ $\frac{5}{12} \div \frac{3}{4} = \frac{5}{9}$ $\quad\quad$ $\frac{9}{16} \div \frac{3}{8} = 1\frac{1}{2}$

$\frac{3}{16} \div \frac{9}{32} = \frac{2}{3}$ $\quad\quad$ $\frac{5}{16} \div \frac{5}{32} = 2$ $\quad\quad$ $\frac{10}{64} \div \frac{1}{4} = \frac{5}{8}$

## Dividing Fractions by Mixed Numbers and Whole Numbers

To divide a fraction by a mixed or whole number, change the mixed or whole number to an improper fraction. Invert and multiply.

**Find:** $\frac{3}{4} \div 3$

Change 3 to $\frac{3}{1}$. Invert and multiply.

$$\frac{3}{4} \div 3 = \frac{3}{4} \div \frac{3}{1} = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$$

(1 over 1)

**Find:** $\frac{9}{10} \div 1\frac{1}{2}$

Change $1\frac{1}{2}$ to $\frac{3}{2}$. Invert and multiply. Simplify.

$$\frac{9}{10} \div 1\frac{1}{2} = \frac{9}{10} \div \frac{3}{2} = \frac{9}{10} \times \frac{2}{3} = \frac{3}{5}$$

(3 over 5; 1 over 1)

**Divide.**

$\frac{6}{7} \div 6 =$ $\frac{1}{7}$

$\frac{7}{10} \div 3\frac{1}{2} =$ $\frac{1}{5}$

$\frac{4}{5} \div 2 =$ $\frac{2}{5}$

$\frac{3}{4} \div 1\frac{1}{2} =$ $\frac{1}{2}$

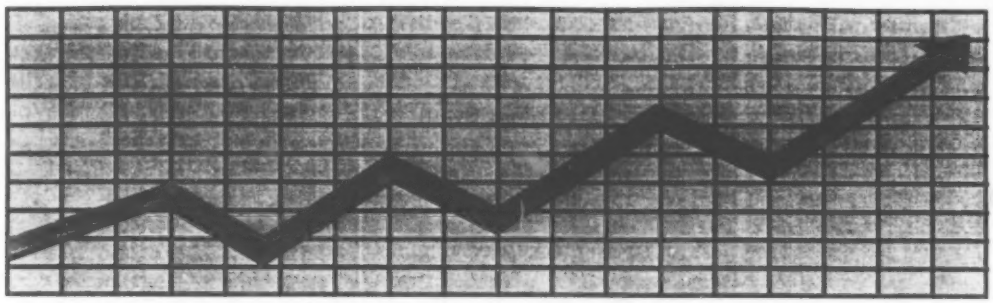
$\frac{5}{6} \div 2\frac{1}{2} =$ $\frac{1}{3}$

$\frac{2}{3} \div 2 =$ $\frac{1}{3}$

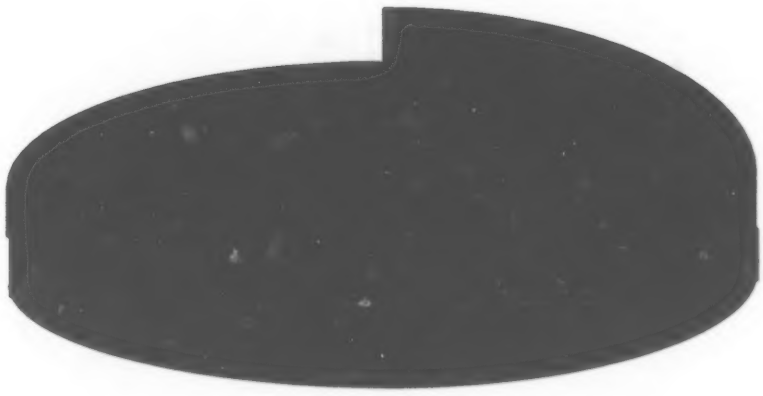
$\frac{4}{9} \div 1\frac{1}{4} =$ $\frac{16}{45}$

$\frac{5}{6} \div 12 =$ $\frac{5}{72}$

$\frac{3}{14} \div 1\frac{1}{2} =$ $\frac{1}{7}$



# SPC



**Module: Math (Basic SPC)** **Overall Time 2 hours**

**Job Title: Yardage Binder Operators** **Page 1 of 1**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Learners will be able to identify data using mean, median, and mode. Students will be able to compare relationship of data on graphs. | **Motivational Activity:** The teacher will distribute a graph to use to demonstrate hands on charting. | 10 min | Graph (Attach A), M&M candy | Participation |
| | **Vocabulary:** Learners will work together to define vocabulary words. | 10 min | Attachment B, Overhead Projector, transparency | Participation |
| | **Instructional Activities:** The instructor will orally and visually demonstate the steps involved to an average. (Specific details in lesson plan). | 30-40 min | Overhead, markers | Observation participation |
| | **Independent Practice:** The learners will complete a pre-test to determine prior knowledge. | 10 min | Attachment C Paper/pencil | Instructor checks for understanding |
| | **Guided Practice:** The teacher will demonstrate in detail the steps involved with finding mean, median, mode and range. (Details in lesson plan). Upon completion the instructor will display several graphs in order for the learners to obtain data to complete worksheets. | 15 min | Attachment D pages 1 and 2 Paper/pencil | Learners work along with the instructor |

| | | | | |
|---|---|---|---|---|
| | **Independent Practice:**<br>The learners will work the worksheets (Attachment F pages 1 and 2) containing word problems pertaining to the graphs.<br><br>**Evaluation:**<br>The instructor will review and ask for thumbs up of thumbs down response pertaining to comprehension of lesson. | 10-15 min<br><br>5 min | Overhead, transperencies, Attachment F | Completion of assignment<br><br>Participation |

**Job Title: Yardage Binder Operators**

**Module: Math** (Basic SPC)

**General Instructional Objective:** Utilize Occupational Specific Math - Introduction to Basic SPC.

**Specific Instructional Objective:** Identify data using mean, median and mode. Recognize data on graphs pertaining to Fieldcrest Cannon.

**Motivational Activity:** The teacher will distribute a graph (Attachment A) to each learner. The words red, blue, yellow, green, brown, and orange are printed on the bottom of each column of the graph. The teacher will distribute a small package of M&M candy to each learner. At this time the teacher will walk away from the learners without giving them any instructions. After a few minutes the teacher will return to the learners and observe what they are doing with the graph and M&M's. The teacher at that time will instruct the learners to put all of the green M&M's in the column that is labeled green, the red M&M's in the red column,etc. After completion the teacher will explain that they have just charted the colors of candy in a package of M&M's. What was the result of this graphing? The teacher will explain to the learners the advantage of using graphs in todays changing world.

**Vocabulary:** Show vocabulary words and definitions on an overhead (Attachment B). The teacher will lead a discussion of words and meanings.

| | | |
|---|---|---|
| Data | Variable | Statistical Process Control |
| Range | Median | Average/Mean |
| Statistics | Mode | Line Graph |
| Bar Graph | Circle Graph | Pie Chart |

**Instructional Activities:**

The teacher will explain to the learners the method used in finding an "average" of something. The teacher will work two or three problems on an overhead or chalkboard to demonstrate the method of finding averages. As an example of averaging, the teacher will ask four or five students to volunteer their shoe size. The teacher will first list the shoe sizes of the learners on the board, next add the numbers, and then divide the sums by how many sizes were listed. The answer will be the average shoe size of the learners who volunteered. As another example of averaging, the teacher will ask the ages of a few of the learners' children. Using the previous method, the teacher will determine the average age of the learners' children. (An example of this worksheet is in the teachers manual.) The teacher will reinforce the meaning of the word "average" and state the word "mean" is another word for average.

The teacher will again explain to the students that to find the average/mean for a group of numbers you must:

First add the numbers.
Then divide the sum of the numbers by how many numbers that are listed.

(REMINDER: An average is usually not equal to any of the numbers in the groups you add. However, it is often close to the middle value of the group.)

At this time the teacher will give a pre-test (Attachment C) to the learners to evaluate prior understanding and knowledge of completing averaging without the use of a calculator. The teacher will review the pretest at a later time. The teacher will now ask the learners to turn to Attachment D in their notebooks. The teacher will review and discuss this worksheet orally with the students, reemphasizing the fact that the word average and mean have the same definition. The learners will work this sheet in small groups using their calculators. Upon completion the teacher and learners will orally review this worksheet. The teacher will at this time review the definitions of the terms previously introduced: Mean, Mode, Median and Range. After this review the teacher will explain the culuminating activity and identify the numbers listed on the chart before learners begin their assignment (Attachments E and F).

The teacher will display examples of a line graph, bar graph, and circle graph on an overhead. (Attachments Graphs). The teacher will discuss the each graph in detail before assigning a worksheet (Attachment G) for the students to complete.

**Evaluation:** The teacher will review the students pretest, worksheets and observe their participation.

Attachment A

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
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| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | | | | |
| | **RED** | **BLUE** | **YELLOW** | **GREEN** | **BROWN** | **ORANGE** |

TEACHER WORKSHEET

**Example 1** An employee scores 95, 75, 84, 70 and 98 on five math tests. Find the average score.

**Solution:**

Step 1. Find the sum of all of the test scores.

$95 + 75 + 84 + 70 + 96 = 420$

Step 2. Divide the sum by the number of test scores (5).

$420 \div 5 = 84$

The average score is 84

**Example 2** Find the average shoe size of your co-workers.

8, 10, 12, 11, 9

**Solution:**

Step 1. Add all sizes $8 + 10 + 12 + 11 + 9 = 50$

Step 2. Divide the total by the number of workers (5) 50 = 10.

$50 \div$ by $5 = 10$

**The average size is 10.**

# Vocabulary Words and Definitions

**Mean /Average** - the sum of the numbers divided by the number of items, represents a middle point

**Mean** - the sum of numbers divided by the number of items

**Data** - factual information

**Range** - the difference between the highest and lowest values in a group

**Median** - point in a set of numbers at which half of the numbers are above and half of the numbers are below this point

**Statistics** - **math that deals with the collection, analysis and presentation of mass data**

**Variable** - **to change or to vary**

**SPC - Statistical Process Control**

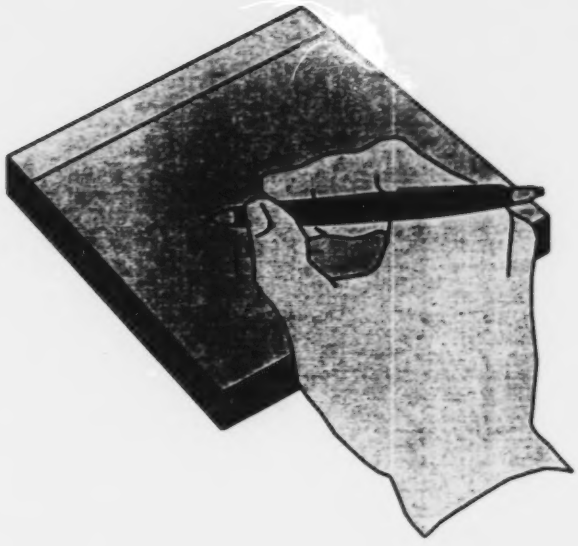
**Mode - the number most often appearing**

**Circle Graph - graph showing the whole amount as a circle. Sometimes referred to as pie charts**

**Line Graph - graph using lines to show patterns or trends. Often useful when comparing changes in amounts**

**Bar Graph - graph using different lengths of bars to compare values**

# Pre Test



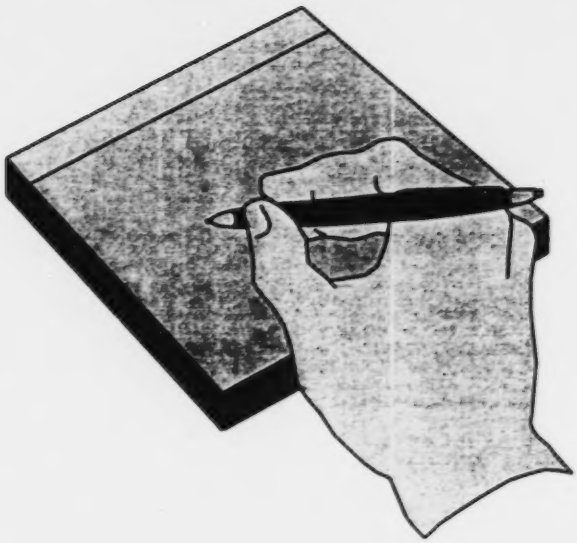
Calculate the sums (=) and averages (X) of the following groups of numbers without using a calculator.

| 1. | | | | | |
|---|---|---|---|---|---|
| | 33 | 25 | 23 | 36 | 37 |
| | 31 | 21 | 22 | 39 | 30 |
| | +32 | +24 | +21 | +33 | +38 |
| | = | = | = | = | = |
| | X = | X= | X= | X= | X= |

| 2. | | | | | |
|---|---|---|---|---|---|
| | 42 | 66 | 73 | 86 | 93 |
| | 43 | 65 | 74 | 88 | 96 |
| | 44 | 61 | 75 | 90 | 99 |
| | 45 | 62 | 71 | 84 | 95 |
| | + 41 | +60 | +76 | +82 | +91 |
| | = | = | = | = | = |
| | X = | X = | X = | X = | X = |

Attachment C
Answer Key

# Pre Test



Calculate the sums (=) and averages (X) of the following groups of numbers without using a calculator.

| | | | | | |
|---|---|---|---|---|---|
| 1. | 33 | 25 | 23 | 36 | 37 |
| | 31 | 21 | 22 | 39 | 30 |
| | +32 | +24 | +21 | +33 | +38 |
| | 96 | 70 | 66 | 108 | 105 |
| | = | = | = | = | = |
| | X = 32 | X= 23.3 | X=22 | X=36 | X=35 |

| | | | | | |
|---|---|---|---|---|---|
| 2. | 42 | 66 | 73 | 86 | 93 |
| | 43 | 65 | 74 | 88 | 96 |
| | 44 | 61 | 75 | 90 | 99 |
| | 45 | 62 | 71 | 84 | 95 |
| | + 41 | +60 | +76 | +82 | +91 |
| = | 215 | = 314 | = 369 | = 430 | = 474 |
| | X = 43 | X =62.8 | X = 73.8 | X = 86 | X = 94.8 |

# Worksheet
# Computing Averages

Directions: Find the mean/average of the following numbers:

a. 20 18 23 19 22 _____

b. 2.3 3.40 4.56 7.9 10.3 _____

c. 384 519 345 362 659 _____

d. 7105 8005 9014 6342 _____

e. 43 26 51 78 90 _____

f. 2.3 3.40 4.56 7.9 10 _____

g. 284 219 345 459 645 _____

# Worksheet
# Computing Averages

Directions: Find the mean/average of the following numbers:

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | 20 | 18 | 23 | 19 | 22 | **20.4** |
| b. | 2.3 | 3.40 | 4.56 | 7.9 | 10.3 | **5.692** |
| c. | 384 | 519 | 345 | 362 | 659 | **453.8** |
| d. | 7105 | 8005 | 9014 | 6342 | | **7616.5** |
| e. | 43 | 26 | 51 | 78 | 90 | **57.6** |
| f. | 2.3 | 3.40 | 4.56 | 7.9 | 10 | **5.632** |
| g. | 284 | 219 | 345 | 459 | 645 | **390.4** |
| h. | 7105 | 8005 | 9014 | 6342 | 4320 | **5957.2** |

Directions: Complete the following word problems.

1. A dye tub operator completed 20 loads, 18 loads, 23 loads, 19 loads, and 22 loads over 5 days. What was the average number of loads completed each day?

_____

2. Thomas dyed 29,620 pounds of rugs in ten days. How many pounds did he average dying each day?

_____

3. A dryer tender stacked 28 loads, 22 loads, 18 loads, 20 loads, and 26 loads over 5 days. What was the average number of loads completed each day?

_____

4. A dye tub operator completed 20 loads, 18 loads, 23 loads, 19 loads, and 22 loads over 5 days. What was the average number of loads completed each day?

_____

5. Harold dyed 14,890 pounds of rugs in a five day work week. How many pounds did he average dying per day?

_____

6. A dryer tender stacked 35 loads, 28 loads, 33 loads, 25 loads, and 38 loads over 5 days. What was the average number of loads stacked each day?

_____

Directions: Complete the following word problems.

1. A dye tub operator completed 20 loads, 18 loads, 23 loads, 19 loads, and 22 loads over 5 days. What was the average number of loads completed each day?

**20.4**

2. Thomas dyed 29,620 pounds of rugs in ten days. How many pounds did he average dying each day?

**2962**

3. A dryer tender stacked 28 loads, 22 loads, 18 loads, 20 loads, and 26 loads over 5 days. What was the average number of loads completed each day?

**22.8**

4. A dye tub operator completed 20 loads, 18 loads, 23 loads, 19 loads, and 22 loads over 5 days. What was the average number of loads completed each day?

**20.4**

5. Harold dyed 14,890 pounds of rugs in a five day work week. How many pounds did he average dying per day?

**2978**

6. A dryer tender stacked 36 loads, 28 loads, 33 loads, 25 loads, and 38 loads over 5 days. What was the average number of loads stacked each day?

**30**

The **mean/average** of a set of numbers is the sum of the numbers divided by the number of items.

The **median** of a set of numbers is the middle number once the numbers have been arranged in order of size.

The **range** in a set of numbers is the difference between the largest and smallest numbers.

The **mode** in a set of numbers is the number that appears most often.

Directions: **Find the mean and median.**

| | | Mean | Median |
|---|---|---|---|
| (1) | 2, 6, 9, 4, 7, 6 | _____ | _____ |
| (2) | 19, 14, 11, 15, 19 | _____ | _____ |
| (3) | 7, 9, 12, 15, 8, 7, 7, 5, 9 | _____ | _____ |
| (4) | 46, 92, 75, 90, 78, 46 | _____ | _____ |
| (5) | 75, 90, 82, 68, 72 | _____ | _____ |

The **mean/average** of a set of numbers is the sum of the numbers divided by the number of items.

The **median** of a set of numbers in the middle number once the numbers have been arranged in order of size.

The **range** in a set of numbers is the difference between the largest and smallest numbers.

The **mode** in a set of numbers is the number that appears most often.

Directions: **Find the mean and median.**

| | | Mean | Median |
|---|---|---|---|
| (1) | 2, 6, 9, 4, 7, 6 | 5.7 | 6 |
| (2) | 19, 14, 11, 15, 19 | 15.6 | 15 |
| (3) | 7, 9, 12, 15, 8, 7, 7, 5, 9 | 8.8 | .8 |
| (4) | 46, 92, 75, 90, 78, 46 | 71.2 | 0 |
| (5) | 75, 90, 82, 68, 72 | 77.4 | 75 |

**Directions: Find the range and mode.**

| | Range | Mode |
|---|---|---|
| 1. 15, 19, 38, 14, 16, 15, 17, 10, 25, 32, 21 | _____ | _____ |
| 2. 85, 44, 62, 46, 44, 48, 46, 44, 75, 72, 60 | _____ | _____ |
| 3. 37, 20, 38, 25, 37, 25, 37, 40, 38, 35, 38 | _____ | _____ |
| 4. 125, 110, 90, 124, 90, 130, 110, 120, 90 | _____ | _____ |
| 5. 1.4, 2.8, 7.6, 3.4, 2.8, 3.6, 7.06, 4 | _____ | _____ |
| 6. 4.2, 1.8, 3.7, 1.6, 6.2, 3.5, 4.8, 5 | _____ | _____ |

**Directions: Find the range and mode**

| | Range | Mode |
|---|---|---|
| 1. 15, 19, 38, 14, 16, 15, 17, 10, 25, 32, 21 | **28** | **15** |
| 2. 85, 44, 62, 46, 44, 48, 46, 44, 75, 72, 60 | **41** | **44** |
| 3. 37, 20, 38, 25, 37, 25, 37, 40, 38, 35, 38 | **20** | **38,37** |
| 4. 125, 110, 90, 124, 90, 130, 110, 120, 90 | **40** | **90** |
| 5. 1.4, 2.8, 7.6, 3.4, 2.8, 3.6, 7.06, 4 | **6.2** | **2.8** |
| 6. 4.2, 1.8, 3.7, 1.6, 6.2, 3.5, 4.8, 5 | **4.6** | **NONE** |

# Culminating Activity

**Have students complete the chart showing averages among 5 employees. When the charts are completed, discuss the answers as a group to compare.**

**Find the average for each column:**

| Tub | Weekly Redyes | Weekly Loads | Actual Minutes | Average Minutes Per Load |
|---|---|---|---|---|
| A | 5 | 26 | 2100 | |
| B | 18 | 30 | 2322 | |
| C | 12 | 28 | 2400 | |
| D | 03 | 30 | 2250 | |
| E | 06 | 36 | 2360 | |
| Weekly Average | | | | |

Attachment F
Answer Sheet

# Culminating Activity

**Have students complete the chart showing averages among 5 employees. When the charts are completed, discuss the answers as a group to compare.**

**Find the average for each column:**

| Tub | Weekly Redyes | Weekly Loads | Actual Minutes | Average Minutes Per Load |
|---|---|---|---|---|
| A | 5 | 26 | 2100 | 8076 |
| B | 18 | 30 | 2322 | 7740 |
| C | 12 | 28 | 2400 | 8571 |
| D | 03 | 30 | 2250 | 7500 |
| E | 06 | 36 | 2360 | 65.55 |
| Weekly Average | 8.8 | 30 | 2286 | 76.88 |

**Directions: Solve the following reading problems. You may use your calculator.**

1. George Jameson weighs 185 pounds, his wife weighs 138 pounds, their daughter Jan weights 97 pounds, their son Joe weighs 88 pounds. What is the average/mean weight for the members of the Jameson family?

2. In June, Al's water bill was $14, in July it was $22, in August it was $33, and in September it was $18 What is the amount of the average/mean water bill? What was Al's average water bill for the four-month period?

3. How much time do you spend sleeping each night, on the average? If you are likea lop of people, you sleep more hours on the weekend than on weekdays. Add up the hours you slept each night last week, then divide by seven to find the average.

4. How do you figure the gas mileage that you get for your car? Explain the procedure you use to determine your mileage.

_____

_____

_____

**Directions: After studying the bar graph that is shown on an overhead showing Scottsboro Rug Mill Percent Seconds, answer the following questions.**

1. Is the graph vertical or horizontal?

2. In which year were there the most seconds?

3. In which year were there the least seconds?

4. Compare January through April in 1995 and 1996. Which year shows the most seconds?

**Directions: Solve the following reading problems. You may use your calculator**.

1. George Jameson weighs 185 pounds, his wife weighs 138 pounds, their daughter Jan weights 97 pounds, their son Joe weighs 88 pounds. What is the average/mean weight for the members of the Jameson family? **127 pounds**

2. In June, Al's water bill was $14, in July it was $22, in August it was $33, and in September it was $18 What is the amount of the average/mean water bill? What was Al's average water bill for the four-month period? **$21.75**

3. How much time do you spend sleeping each night, on the average? If you are like a lot of people, you sleep more hours on the weekend than on weekdays. Add up the hours you slept each night last week, then divide by seven to find the average.
**7 hours**

4. How do you figure the gas mileage for your car? Explain the procedure you use to figure the mileage.
**You take the amount of gallons of gas you purchased and divide it into the amount of miles you have driven to find the average.**

**Directions: After studying the bar graph shown on the overhead showing Scottsboro Rug Mill Percent Seconds,answer the following questions.**

1. Is the graph vertical or horizontal? **Vertical**

2. In which year were there the most seconds? **1996**

3. In which year were there the least seconds? **1995**

4. Compare January through April in 1995 and 1996. Which year shows the most seconds? **1995**

**Directions: After studying the line graph showing Scottsboro Rug Mill Percent Seconds, answer the following questions.**

1. Which year showed the smallest amount of seconds?

2. Which year showed the largest amount of seconds?

3. What month and year were the least amount of seconds shown?

4. What is the average amount of seconds you can identify by looking at this graph at a glance?

**Directions: After studying the circle graph concerning 1995 Warehouse Costs, answer the following questions.**

1. What is the most expensive cost in the upkeep of the Warehouse?

2. What percent is contract labor?

3. Would overtime and contract labor equal to the same amount as supplies?

4. Of the three graphs which was the easiest for you to read?

**Directions: After studying the line graph showing Scottsboro Rug Mill Percent Seconds, answer the following questions.**

1. Which year showed the smallest amount of seconds? 1995

2. Which year showed the largest amount of seconds? 1996

3. What month and year were the least amount of seconds shown? May 1996

4. What is the average amount of seconds you can identify by looking at this graph at a glance? 1.5 Answers may vary

**Directions: After studying the circle graph concerning 1995 Warehouse Costs, answer the following questions.**

1. What is the most expensive cost in the upkeep of the Warehouse? Indirect Labor

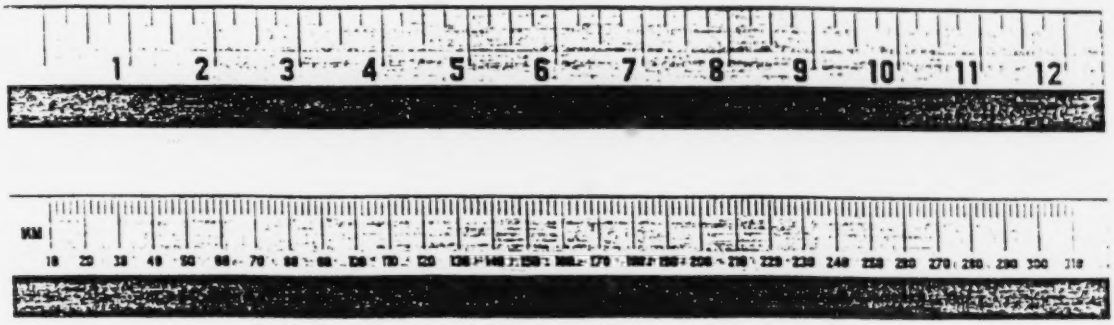
2. What percent is contract labor? 11.0%

3. Would overtime and contract labor equal to the same amount as supplies? No

4. Of the three graphs which was the easiest for you to read? Answers vary

**Note:** Graphs pertaining to Fieldcrest Cannon have been deleted from the generic curriculum. Industry specific information could be inserted to replace deleted graphs.

# MEASUREMENT




BEST COPY AVAILABLE

**Module:** **Math - Linear Measurement** **Overall Time 60 min.**
**Job Title:** **Binders**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Upon completion of instruction, the learner should be able to measure any given part with 100% accuracy using a ruler. | **Motivational Activity:.** Teacher will ask learners to assemble puzzles resembling patchwork quilt pieces. | 10 min | Patchwork quilt, Puzzles, Overview of Fieldcrest and measurement | Observation |
| | **Vocabulary:** Learners will identify words and definitions. | 5 min | Vocabulary cards, Attachment A | Observation |
| | **Instructional Activity:** Brief discussion relating measuring at home and at work. Learners will complete preview of conversion (Attach. B). | 5 min | Attachment B | Participation |
| | **Guided Practice:** Teacher will review Attachment C with learners and guide learners in measuring diagrams. | 10 min | Chalk board Overhead projector Transparencies Attachment C | Observation |
| | **Independent Practice:** Teacher will ask learners to use rulers to measure specified items and record their answers in the simplest form. | 10 min | Ruler for each learner, items to be measured, Attachment D | Observation |
| | **Evaluation:** Worksheet Attachment E | 10 - 15 min | Attachment E | Check for accuracy |

**Job Title:** Binders

**Module:** Math - Measurement

**General Instructional Objective:** Improve linear measurement skills.

**Specific Instructional Objective:** Upon completion of instruction, the learner will be able to measure any given part with 100% accuracy using a tape measure.

**Motivational Activity**: Display patchwork quilt over a chair in front of classroom. Instructor will ask the learners to assemble the puzzles that are displayed on the table. (No instructions given) After one minute, give learners the following clue: ***The finished size of the puzzle will be 8 1/2 x 10 3/8.*** Wait another couple of minutes and give another clue on the overhead projector (transparency provided). The third and last clue will be a colored diagram of the finished puzzle. Upon completion, the learners will see the importance of accurate measurement and how it relates to the overall dimensions of finished products.

**Vocabulary:** Distribute vocabulary words and definitions printed on separate cards (mounted on wooden sticks). A learner will be asked to read and display his/her card. The learner with the corresponding word or definition will be asked to respond by reading and displaying his/her card. This procedure will continue until all words and definitions have been read and displayed. Words and definitions (Attachment A) are provided in learner workbook.

| | | | |
|---|---|---|---|
| fraction | numerator | denominator | reduce |
| measurement | increment | tolerance | ruler |
| simplest form/lowest terms | | | |

**Instructional Activities**: Brief discussion relating the importance of accurate measuring at home and at work. (Examples: hanging wallpaper, sewing, baking, etc.). Teacher will refer learners to Attachment B and review the overview about accurate measurement and how important accuracy is at Fieldcrest.

**Guided Practice:** Teacher will use overhead transparency to guide learners in measuring the diagrams on page 1 of Attachment C. The teacher will review the incrments of a ruler then work with the learners on page 1 before making assisngment.on pages 2 and 3 of Attachment C. Learners will record measurements on each diagram.

**Independent Practice:** Learners will use rulers to measure displayed items and record their answers in the lowest terms (Attachment D). Allow students 6 to 8 minutes to record their measurements. Upon completion, review answers for accuracy.

Supplemental material is prepared to distribute to those who finish assignment early.

**Evaluation:** Teacher will ask learners to complete worksheet (Attachment E) in workbook.

# Vocabulary

| | |
|---|---|
| **Fraction** | **A part of a whole quantity** |
| **Numerator** | **Indicates the number of equal parts of the denominator that is taken** |
| **Denominator** | **Indicates the equal number of parts into which the unit is divided** |
| **Reduce** | **To make smaller without changing the value** |
| **Simplest Form/ Lowest Terms** | **A fraction that cannot be reduced further** |
| **Measurement** | **A figure or amount obtained by measuring** |
| **Increment** | **The amount or degree by which something changes** |
| **Tolerance** | **The allowable deviation or change from a standard** |
| **Ruler** | **Smooth edged device marked in units used for measuring** |

# Preview of Conversion

**Complete each of the following:**

1. 1 day = _____ min

2. 480 in. = _____ ft.

3. 4 ft. 8 in = _____ in.

4. 8 wks 4 days = _____ days

5. 72 fl oz = _____ pt.

6. 150 in. = _____ yd.

7. 5 days = _____ min.

8. 84 oz. = _____ lb.

9. Sam worked 47 hours 23 minutes last week. How many minutes did Sam work?

10. A roll of carpet contains 1,496 feet. How many yards of carpet is on a roll?

# Preview of Conversion

**Complete each of the following:**

1. 1 day = **1440** min

2. 480 in. = **40** ft.

3. 4 ft. 8 in = **56** in.

4. 8 wks 4 days = **60** days

5. 72 fl oz = **4.5** pt.

6. 150 in. = **4 1/6** yd.

7. 5 days = **7200** min.

8. 84 oz. = **5.25** lb.

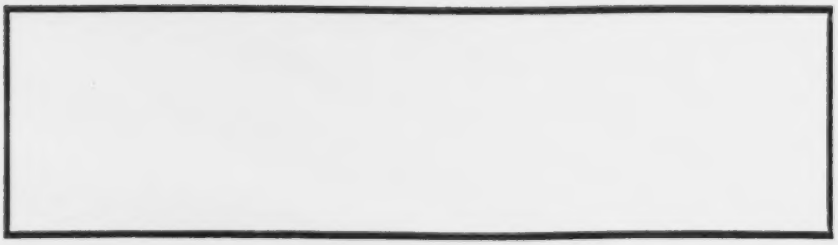
9. Sam worked 47 hours 23 minutes last week. How many minutes did Sam work?

**2843 minutes**

10. A roll of carpet contains 1496 feet. How many yards of carpet is on a roll?

**498.6 yards**

**Directions: Measure the diagrams and record your answers in lowes terms.**



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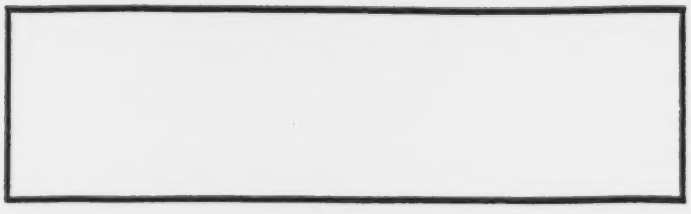
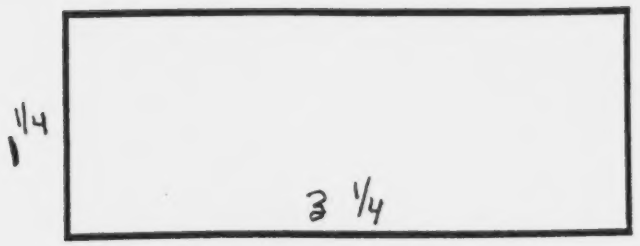
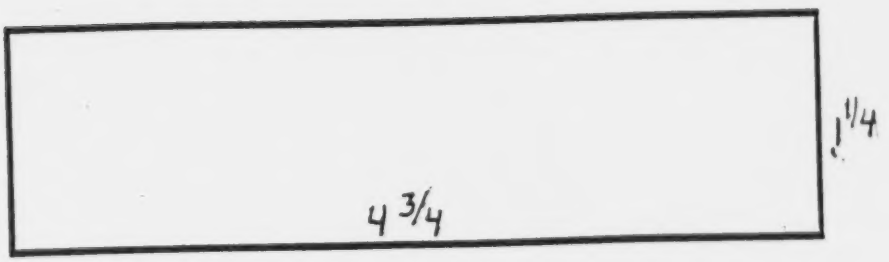
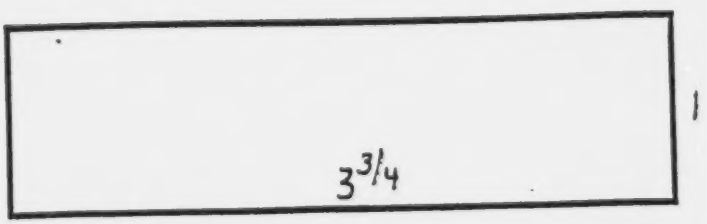


**Directions: Measure the diagrams and record your answers in lowest terms.**



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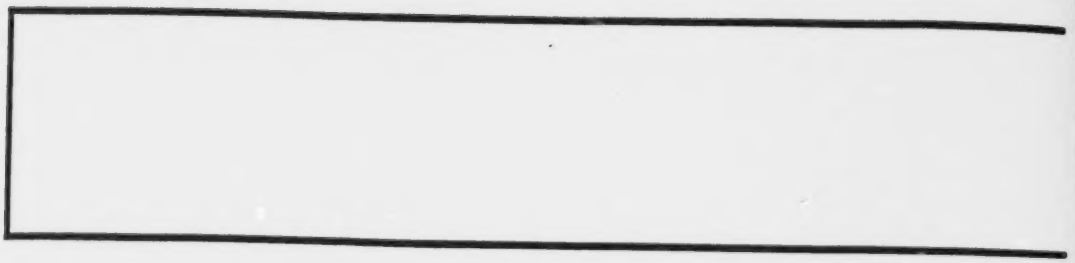

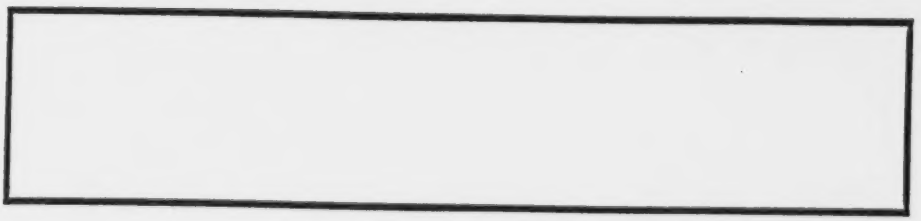

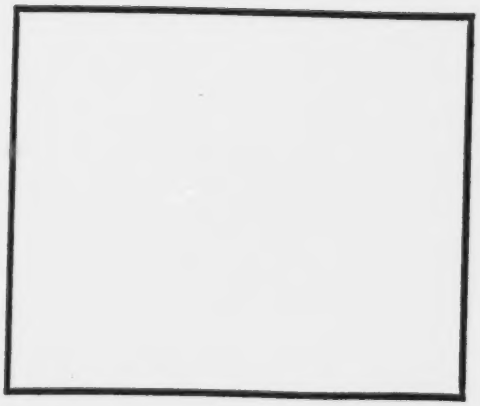

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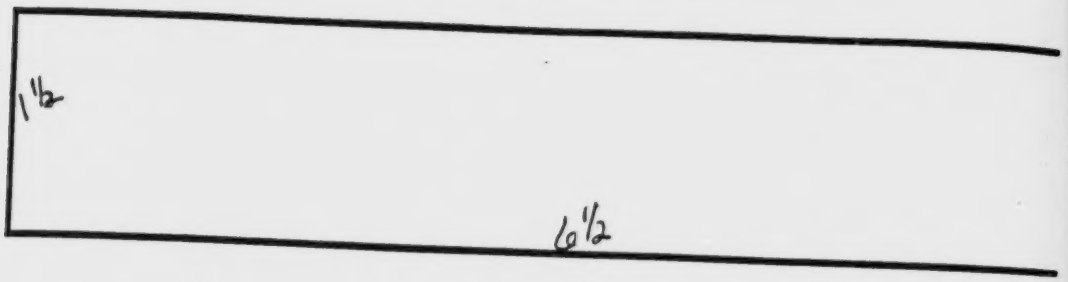


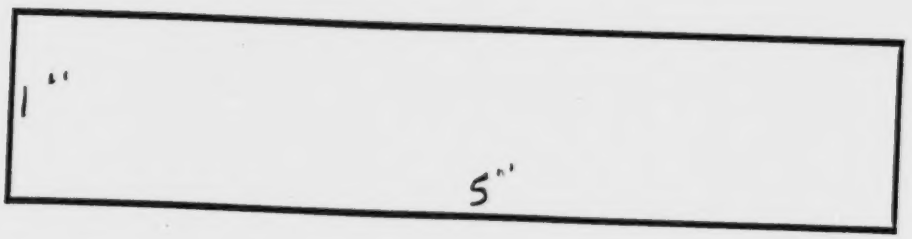


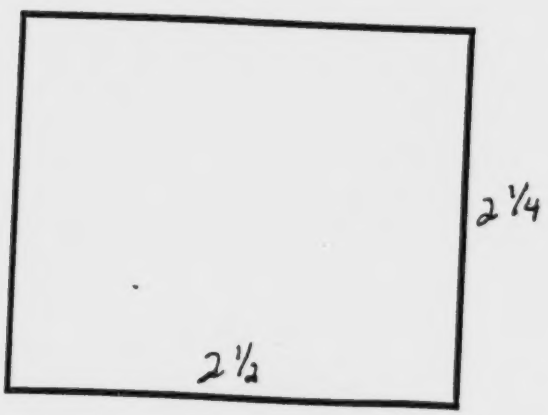


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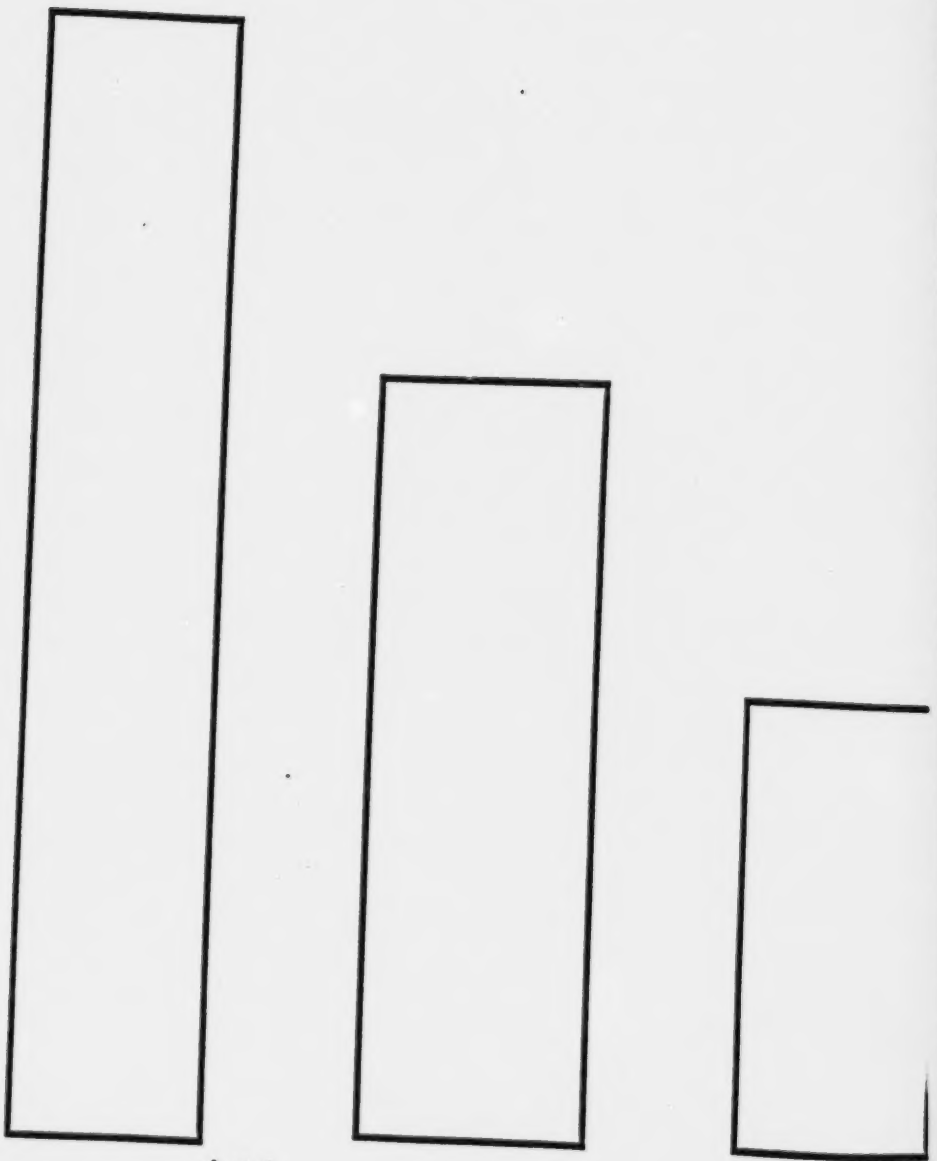

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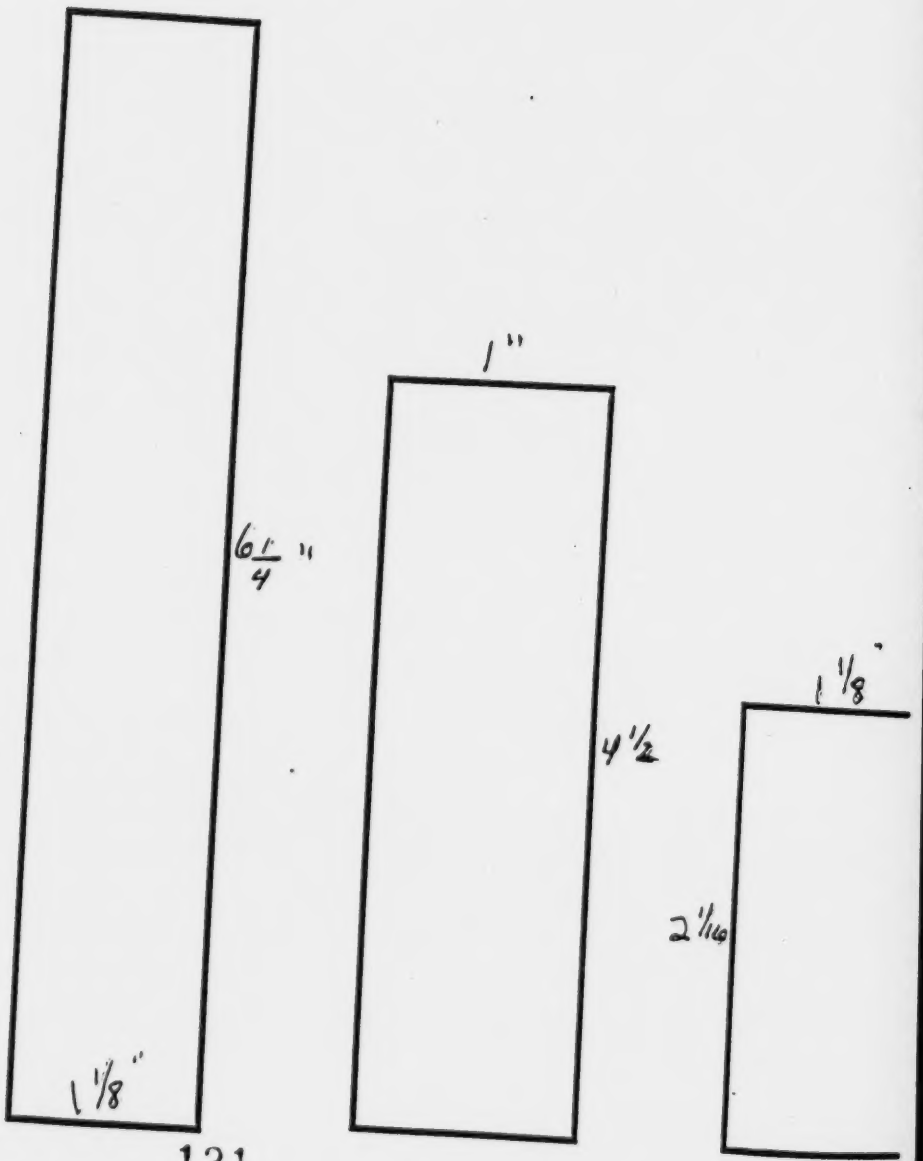




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**Directions: Measure each of the displayed items. Reduce answers to lowest terms.**

| | | Width | Length |
|---|---|---|---|
| 1. | Binding | _____ | _____ |
| 2. | Button | _____ | _____ |
| 3. | Book | _____ | _____ |
| 4. | Post-it note | _____ | _____ |
| 5. | Pencil | _____ | _____ |
| 6. | Small rug | _____ | _____ |
| 7. | _____arm (wrist to elbow) (Selected Participant) | | _____ |
| 8. | Scissors | _____ | _____ |
| 9. | Spool of thread | _____ | _____ |
| 10. | Gem clip | _____ | _____ |

**Solve the following problems:**

1. How many inches are in 10 feet? _____

2. How many inches are in 4 yards? _____

3. Jason is planning a schedule for the next 5 weeks. His plant operates 24 hours a day, 7 days a week. How many hours must he schedule?

_____

_____

4. The machine in the shop must be oiled every 72 hours of operation. It has operated 24 hours a day for 2 days. Does it need oil?

_____

_____

5. Larry worked on his car for 5 3/4 hours. Write the amount of time he worked using hours and minutes.

_____

6. Joyce is paid $9.90 an hour. She worked the following hours:

| Day | Time |
|---|---|
| Monday | 7 hr 30 min |
| Tuesday | 9 hr |
| Wednesday | 7 hr 15 min |
| Thursday | 8 hr 45 min |
| Friday | 9 hr 30 min |

Total hours _____

Weekly salary _____

7. What part of a foot is 4 inches? _____

8. Sarah is paid $6. 40 per hour. She worked the following hours:

| Day | Time |
|---|---|
| Monday | 8 hr 30 min |
| Tuesday | 7 hr 45 min |
| Wednesday | 10 hr 15 min |
| Thursday | 9 hr 30 min |
| Friday | 8 hr |

Total hours _____

Weekly salary _____

9. The disk on the machine spins 30 times a second. How many times does the disk spin in an hour?

_____

10. Fieldcrest Cannon uses approximately 3 yards of binding per 24 x 36 inch rug. If a binder sews 480 rugs, how many yards of binding will be used? _____

**Solve the following problems:**

1. How many inches are in 10 feet? **120**

2. How many inches are in 4 yards? **144**

3. Jason is planning a schedule for the next 5 weeks. His plant operates 24 hours a day, 7 days a week. How many hours must he schedule?

**840**

4. The machine in the shop must be oiled every 72 hours of operation. It has operated 24 hours a day for 2 days. Does it need oil?

**No**

5. Larry worked on his car for 5 3/4 hours. Write the amount of time he worked using hours and minutes.

**Five hours and forty-five minutes**

6. Joyce is paid $9.90 an hour. She worked the following hours:

| Day | Time |
|---|---|
| Monday | 7 hr 30 min |
| Tuesday | 9 hr |
| Wednesday | 7 hr 15 min |
| Thursday | 8 hr 45 min |
| Friday | 9 hr 30 min |

Total hours **42**

Weekly salary **415.80**

7. What part of a foot is 4 inches? **1/4**

8. Sarah is paid $6. 40 per hour. She worked the following hours:

| Day | Time |
|---|---|
| Monday | 8 hr 30 min |
| Tuesday | 7 hr 45 min |
| Wednesday | 9 hr 30 min |
| Friday | 8 hr. |

Total hours **44**

Weekly salary **281.60**

9. The disk on the machine spins 30 times a second. How many times does the disk spin in an hour?

**108,000**

10. Fieldcrest Cannon uses approximately 3 yards of binding per 24 x 36 inch rug. If a binder sews 480 rugs, how many yards of binding will be used?

**160**

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## *Steel Rules*

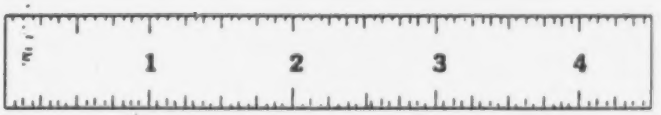
Steel rules, also called rulers or scales, include spring-tempered, flexible, narrow or hooked rules. Rule lengths range from 1 to 48 inches. The most common rule is the spring-tempered 6-inch rule.

Most steel rules are marked along each edge, and often at the ends, with fine lines indicating subdivisions of an inch. The subdivisions are classified by number. For example, fractional-inch rules may be marked in 64ths, 32nds, 16ths and 8ths. Decimal-inch rules may be divided into 10ths and 100ths of an inch, and metric rules into centimeters, millimeters and ½ millimeter graduations.

### *Fractional-inch Rule*

The fractional-inch rule is divided into equal parts (inches). Each inch is divided into equal fractional parts. The fractional parts are halves (½), quarters (¼), eighths (⅛) and sixteenths (1/16). Some fractional-inch rules have divisions as small as thirty-seconds (1/32) and sixty-fourths (1/64). The denominator (bottom number) of the fraction indicates the number of spaces of that size within an inch (Figs. 1 and 2).

*Fig. 1*




***Six-inch Rule Divided into 8ths and 16ths***

*Fig. 2*

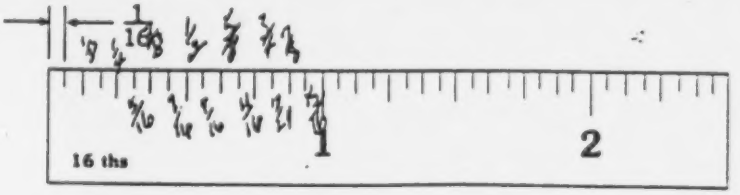
***Six-inch Rule Divided into 32nds and 64ths***



Pangia, Michael D., Measuring Up. The Complete Measurement Handbook, Sedona Enterprises Inc., 1992, Brooklyn New York.

Fig. 3 shows an inch marked in halves, fourths, eighths and sixteenths. The 1-inch division is the longest, and ½-inch line is next in length, and so on, down to the line for 1/16-inch, which is the shortest.

***Fig. 3***




***Rule Divided into 16ths***

The number on the end of the rule, such as "16" in Fig. 3, indicates the number of divisions per inch on that rule.

Fractional measurements are always reduced to their lowest terms.

### *Review of Reducing Fractions*

***Remember:*** Reducing a fraction does not change the value of the fraction. Reducing it to its lowest terms makes a large fraction easier to work with.

To reduce a fraction to lowest terms, divide both the numerator (top number) and denominator (bottom number) by the same number. For example, the fraction 2/8 can be reduced as follows:

$$2 \div 2 = 1$$
$$8 \div 2 = 4$$

The fractions 2/8 and 1/4 have the same value.

A fraction is reduced to its lowest terms if 1 is the only number which evenly divides both the numerator and the denominator.

For example, the fraction 16/32 can be reduced to its lowest terms as follows:

***a.*** $16 \div 2 = 8$, $32 \div 2 = 16$ ***b.*** $8 \div 2 = 4$, $16 \div 2 = 8$ ***c.*** $4 \div 2 = 2$, $8 \div 2 = 4$ ***d.*** $2 \div 2 = 1$, $4 \div 2 = 2$

As shown above, 16/32 has been reduced to its lowest terms in example ***d.***, because the 1 and 2 in ½ have no common divisor other than 1.

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Pangia, Michael D., Measuring Up The Complete Measurement Handbook, Sedona Enterprises Inc., 1992, Brooklyn New York

1. Solve these problems. Show all work.

a. In $1\frac{1}{2}$ there are _____ 16ths.

b. In $\frac{1}{2}$ there are _____ 16ths.

c. In $\frac{3}{4}$ there are _____ 8ths.

d. In $1\frac{4}{16}$ there are _____ 8ths.

e. In $\frac{24}{32}$ there are _____ 4ths.

f. In $2\frac{1}{2}$ there are _____ 16ths.

g. $\frac{12}{16}$ reduced to its lowest terms is _____.

h. $\frac{28}{32}$ reduced to its lowest terms is _____.

i. $\frac{48}{64}$ reduced to its lowest terms is _____.

j. $\frac{96}{64}$ reduced to its lowest terms is _____.

k. $\frac{19}{32}$ reduced to its lowest terms is _____.

l. In $1\frac{40}{64}$ there are _____ 16ths.

m. In $\frac{1}{8}$ there are _____ 64ths.

n. In $1\frac{5}{16}$ there are _____ 32nds.

o. In $\frac{3}{4}$ there are _____ 16ths.

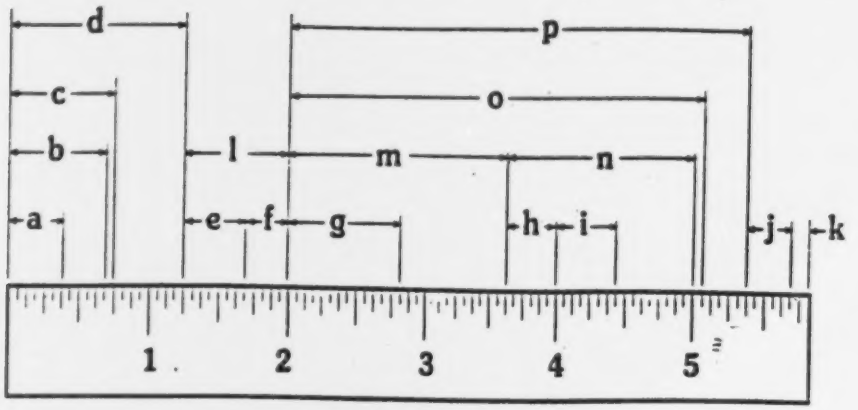
p. $\frac{15}{8}$ reduced to its lowest terms is _____.



Pangia, Michael D. Measuring Up The Complete Measurement Handbook, Sedona Enterprises Inc., 1992, Brooklyn New York.

In Fig. 4, note how measurement (a) is filled in. Fill in measurements for spaces (b) to (p).

*Fig. 4*



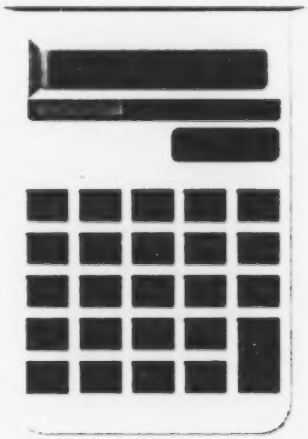

***Rule Reading***

| | | | |
|---|---|---|---|
| *a.* 3/8 | *e.* _____ | *i.* _____ | *m.* _____ |
| *b.* _____ | *f.* _____ | *j.* _____ | *n.* _____ |
| *c.* _____ | *g.* _____ | *k.* _____ | *o.* _____ |
| *d.* _____ | *h.* _____ | *l.* _____ | *p.* _____ |



Pangia, Michael D. Measuring Up The Complete Measurement Handbook. Sedona Enterprises Inc., 1992, Brooklyn New York

# Calculator



**Module: Math - Calculator** **Overall Time 50 min**

**Job Title: Yardage Binder Operators** **Page 1 of 1**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Perform basic calculations using a calculator with 100% accuracy. | **Motivational Activity**: Instructor will place an addition problem on the chalk board and demonstrate the ease of finding the answer with the calculator vs. using traditional pencil/paper method. | 5 min | Chalk or dry erase board and chalk or markers | |
| | **Teach Vocabulary**: Use overhead transparency to introduce and discuss vocabulary words. Refer to words and definitions located in participant workbook. | 5 min | Overhead projector Transparency (Attach. A) | |
| | **Instructional Activities**: Distribute calculator to each participant. Acquaint participants with calculator keys using overhead transparency (Attach. B). Provide instruction using the calculator to perform mathematical procedures: Use worksheets provided for each procedure (Attachments C-L). | 20 min | Calculators<br>Overhead projector<br>Transparency (Attach. B)<br>Attachments C,D,E,F,G, H,I,J,K,L | Teacher observation of responses<br>Teacher will check learners' work for understanding and accuracy |
| | **Evaluation:** Learners will complete worksheet (Attachment M in participants workbook) using the calculator to solve the problems. | | Attachment M | Teacher will check for understanding |

**Job Title:** Yardage Binder Operators

**Module:** Math - Calculator

**General Instructional Objective:** Understand use of basic calculator functions.

**Specific Instructional Objective:** Perform basic calculations with a calculator with 100% accuracy.

**Motivational Activity:** Place an addition problem (234 + 891 + 932 + 25 + 468 = ) on the board and demonstrate the ease of finding the answer with the calculator vs. using traditional methods.

**Vocabulary:** Refer to vocabulary words in participant's workbook. (Attachment A) Use overhead transparency to introduce and discuss vocabulary words.

**Instructional Activities:** Refer learners to Attachment B in participants's workbook (Calculator Keys). Use overhead transparency to help students to identify the keys on calculator.

**NOTE:** ***In this lesson, instructor will provide instruction on several applications using the calculator. Before each new procedure, the instructor will show paper/pencil version of the procedure using the chalk board for demonstration of the procedure.***

Provide instruction on **addition** using the calculator (Attachment C). Teacher will ask learners to do the following: Press the numbers 5 and 6 and notice the display reads 56. Press + and notice the display reads 56. Press the number 4 two times and notice the display reads 44. Press = and notice the display now reads 100. Learners will continue practicing procedure by completing items 2-4 on Attachment C.

Learners will practice addition procedure by completing worksheet (Attachment D) in workbook independently.

Provide instruction on **subtraction** using the calculator (Attachment E). Teacher will use the same procedure described for Attachment C above.

Learners will practice procedure by completing worksheet (Attachment F) in workbook independently.

Provide instruction on **multiplication** using the calculator (Attachment G). (Use same procedure described for Attachment C.)

Learners will practice procedure by completing worksheet (Attachment H) in workbook independently.

**Job Title:** Dye House Operators
**Module:** Math - Calculator

Provide instruction on **division** using the calculator (Attachment I). (Use same procedure described for Attachment C.)

Learners will practice procedure by completing worksheet (Attachment J) in workbook independently.

Provide instruction on finding part of a whole (**percentage**) using the calculator (K). Instructor will demonstrate finding a percent of a whole number by use of the percent key and by use of the decimal. Learners will practice procedure by completing worksheet (Attachment L) in workbook.

**Evaluation:** Learners will complete worksheet (Attachment M) in workbook using a calculator to solve addition, subtraction, multiplication, and percentage problems. Teacher will check work individually for understanding and accuracy.

# Vocabulary

| | |
|---|---|
| Calculator | Electronic device for mathematical computations |
| Function Keys | Keys used for mathematical calculating |
| Solar-Powered Calculator | Contains a row of solar cells. These cells change light into electricity to power the calculator. |
| Battery-Operated Calculator | Contains a battery to power the calculator |
| Calculator Display | Displays the digits entered |
| Sum | Result of ***adding*** numbers |
| Product | Result of ***multiplication*** of two or more numbers |
| Quotient | Result of ***division*** of one number by another number |
| Dividend | Number ***to be divided*** |
| Divisor | Number by which the ***dividend*** is ***divided*** |

Attachment A
Over head transparency

# Vocabulary

**Calculator**

**Function Keys**

**Solar-Powered Calculator**

**Battery-Operated Calculator**

**Calculator Display**

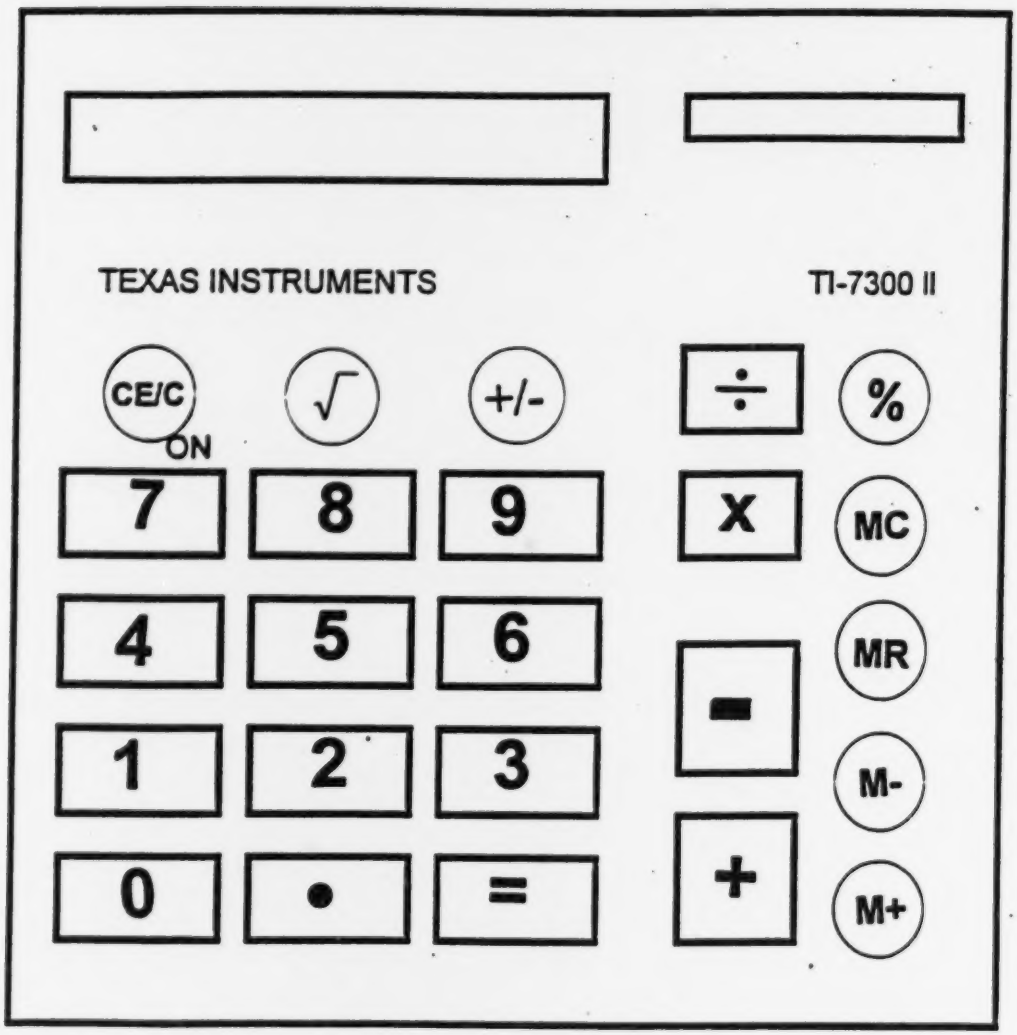
**Sum**

**Product**

**Quotient**

**Dividend**

**Divisor**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M-
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•
=
+
M+

## Addition With The Calculator

1. To add 56 + 44, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 5 and 6 | 56. |
| + | 56. |
| 4 and 4 | 44. |
| = | 100. |

Answer: 100

2. To Add 26 + 41, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 2 6 | 26. |
| + | 26. |
| 4 1 | 41. |
| = | 67. |

Answer: 67

3. To add 23 + 12 + 96, press keys as shown:

| Press Keys | Display Reads |
|---|---|
| 23 | 23. |
| + | 23. |
| 12 | 12. |
| + | 35. |
| 96 | 96. |
| = | 131. |

Answer: 131

4. To add 27 + 534 + 23, press keys as shown:

| Press Keys | Display Reads |
|---|---|
| 2 7 | 27. |
| + | 27. |
| 5 3 4 | 534. |
| + | 561. |
| 2 3 | 23. |
| = | 584. |

Answer: 584

# Addition on the Calculator

Solve the following problems with the calculator:

1. 43 + 76 = _____

2. 1,756 + 4,356 = _____

3. 3.61 + 5.7 = _____

4. $.89 + $2.56 = _____

5. $3.78 + $9.49 = _____

6. $367.89 + $59.68 + $4.90 = _____

7. 9.32 + 5.09 + 8 + .46 = _____

8. If the records of a first shift operator show the following amounts of rugs were sewn on Monday:

| | | | |
|---|---|---|---|
| Contour | 1,185 rugs | 24 x 36 | 1,250 rugs |
| 21 x 34 | 950 rugs | 17 x 24 | 1,150 rugs |

How many rugs did this operator sew on Monday? _____

9. Dave tripped on a rubber mat in the sewing room. He injured his leg and was taken to the emergency room. He incurred the following expenses: $50.00 doctor fee; $130.00 for X-rays; $46.84 for medicine; and $50.00 to rent a set of crutches. How much were Dave's medical expenses? _____

# Addition on the Calculator

Solve the following problems with the calculator:

1. 43 + 76 = **119**

2. 1,756 + 4,356 = **6112**

3. 3.61 + 5.7 = **9.31**

4. $.89 + $2.56 = **$3.45**

5. $3.78 + $9.49 = **$13.27**

6. $367.89 + $59.68 + $4.90 = **$432.47**

7. 9.32 + 5.09 + 8 + .46 = **22.87**

8. If the records of a first shift operator show the following amounts of rugs were sewn on Monday:

| | | | |
|---|---|---|---|
| Contour | 1,185 rugs | 24 x 36 | 1,250 rugs |
| 21 x 34 | 950 rugs | 17 x 24 | 1,150 rugs |

How many rugs did this operator sew on Monday? **4,535**

9. Dave tripped on a rubber mat in the sewing room. He injured his leg and was taken to the emergency room. He incurred the following expenses: $50.00 doctor fee; $130.00 for X-rays; $46.84 for medicine; and $50 to rent a set of crutches. How much wereDave's medical expenses? **$276.84**

**Directions: Complete the following word problems.**

1. A sewing operator completed 210 rugs, 200 rugs, 195 rugs and 190 rugs in four hours. What was the average number of rugs completed per hour?

2. Lena sewed binding on 15,200 rugs in a ten day period. What was the average number of rugs that were bound each day?

3. A service operator delivered 555 rugs, 780 rugs, and 800 rugs to an operator. What was the total amount of rugs delivered?

4. A binder completed 1,480 rugs on Monday, 1,550 on Tuesday, 1,500 on Wednesday, 1,450 on Thursday and 1,600 on Friday. What was the average amounts bound per day?

5. If an operator has waiting time from 12:00 to 12:35, 2:00 to 2:15 and 9:15 to 9:40, what is the total amount of waiting time for the period?

**Directions: Complete the following word problems.**

1. A sewing operator completed 210 rugs, 200 rugs, 195 rugs and 190 rugs in four hours. What was the average number of rugs completed per hour?

**198.75 rugs**

2. Lena sewed binding on 15,200 rugs in a ten day period. What was the average number of rugs that were bound each day?

**1520 rugs**

3. A service operator delivered 555 rugs, 780 rugs, and 800 rugs to an operator. What was the total amount of rugs delivered?

**2135 rugs**

4. A binder completed 1,480 rugs on Monday, 1,550 on Tuesday, 1,500 on Wednesday, 1,450 on Thursday and 1,600 on Friday. What was the average amounts bound per day?

**1246 rugs**

5. If an operator has waiting time from 12:00 to 12:35, 2:00 to 2:15 and 9:15 to 9:40, what is the total amount of waiting time for the period?

**75 minutes**

# Subtraction On The Calculator

1. To subtract 36 from 98, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 9 8 | 98. |
| − | 98. |
| 3 6 | 36. |
| = | 62. |

Answer: 62

2. To subtract 3.67 from 10.45, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 1 0 . 4 5 | 10.45 |
| − | 10.45 |
| 3 . 6 7 | 3.67 |
| = | 6.78 |

Answer: 6.78

3. To complete the problem 35 + 8.3 -10.25, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 3 5 | 35. |
| + | 35. |
| 8 . 3 | 8.3 |
| − | 43.3 |
| 10 . 25 | 10.25 |
| = | 33.05 |

**Answer: 33.05**

4. To complete the problem 8.6 + 2.3 + 8.9 – 4.1, press the keys as shown:

| Press Keys | Display Reads |
|---|---|
| 8 . 6 | 8.6 |
| + | 8.6 |
| 2 . 3 | 2.3 |
| + | 10.9 |
| 8 . 9 | 8.9 |
| − | 19.8 |
| 4 . 1 | 4.1 |
| = | 15.7 |

Answer: 15.7

# Subtraction on the Calculator

Solve the following problems using the calculator.

1. 89 – 35 =

2. 1996 – 345 =

3. 1.357 – 1.11 =

4. 89.0 – 34.6 =

5. 11.2 + 6.9 – 2.7 – 7.2 =

6. 98.5 – 34.2 – 12.4 =

7. A rush order for Velur rugs must be completed as soon as possible. It requires 7,000 to be sewn. There were five operators available. At the rate of 178.4/hr., how many hours will it take the five operators to complete the order? _____ How many hours will it take if three operators work on the order instead of five? _____

8. A lock-out/tag-out was placed on machine #4 at 3:00 p.m. The machine was repaired and restarted at 6:30 p.m. How many hours was the machine out of operation? _____

9. Associates of one area of the plant raised $250 for the March of Dimes by selling chances on a rod and reel. Associates in another area of the plant had a bake sale and raised $135. How much more money was raised by the employees selling chances on the rod and reel? _____ What was the total raised by the associates of the two areas? _____

Attachment F
Answer Sheet

# Subtraction on the Calculator

Solve the following problems using the calculator.

1. 89 – 35 = **54**

2. 1996 – 345 = **1651**

3. 1.357 – 1.11 = **.247**

4. 89.0 – 34.6 = **54.4**

5. 11.2 + 6.9 – 2.7 – 7.2 = **8.2**

6. 98.5 – 34.2 – 12.4 = **51.9**

7. A rush order for Velur rugs must be completed as soon as possible. It requires 7,000 to be sewn. There were five operators available. At the rate of 178.4/hr., how many hours will it take the five operators to complete the order? **7.84** How many hours will it take if three operators work on the order instead of five? **13**

8. A lock-out/tag-out was placed on machine #4 at 3:00 p.m. The machine was repaired and restarted at 6:30 p.m. How many hours was the machine out of operation? **3 hours and 30 minutes**

9. Associates of one area of the plant raised $250 for the March of Dimes by selling chances on a rod and reel. Associates in another area of the plant had a bake sale and raised $135. How much more money was raised by the employees selling chances on the rod and reel? **$250 - $135 = $115** What was the total raised by the associates of the two areas? **$385.00**

# Multiplication on the Calculator

1. To multiply 345 by 12 on the calculator, press the following keys:

| Press Keys | Display Reads |
|---|---|
| 3 4 5 | 345. |
| X | 345. |
| 1 2 | 12. |
| = | 4140. |

Answer: 4140

2. To multiply 26.13 X 7.1 on the calculator, press the following keys:

| Press Keys | Display Reads |
|---|---|
| 2 6 . 1 3 | 26.13 |
| X | 26.13 |
| 7 . 1 | 7.1 |
| = | 185.523 |

Answer: 185.523

3. To multiply 182.2 X 9.45 on the calculator, press the following keys:

| Press Keys | Display Reads |
|---|---|
| 1 8 2 . 2 | 182.2 |
| X | 182.2 |
| 9 . 4 5 | 9.45 |
| = | 1721.79 |

Answer: 1721.79

4. To multiply 1.2 X 2.4 X 6.8 on the calculator, press the following keys:

| Press Keys | Display Reads |
|---|---|
| 1 . 2 | 1.2 |
| X | 1.2 |
| 2 . 4 | 2.4 |
| X | 2.88 |
| 6 . 8 | 6.8 |
| = | 19.584 |

Answer: 19.584

# Multiplying with the Calculator

Solve the following problems using the calculator:

1. 424 X 56 =

2. 89 X 2.25 =

3. 24 X 56 X 98 =

4. .78 X 3.6 X 1.9 =

5. .09 X .11 =

6. 23.54 X 9.30 =

7. .87 X 98.1 =

8. 34.61 X 4.15 =

9. $12.15 X 12 =

10. 789 X 123 =

Attachment H
Answer Sheet

## Multiplying with the Calculator

Solve the following problems using the calculator:

1. 424 X 56 = **23,744**
2. 89 X 2.25 = **200.25**
3. 24 X 56 X 98 = **131,712**
4. .78 X 3.6 X 1.9 = **5.3352**
5. .09 X .11 = **.0099**
6. 23.54 X 9.30 = **218.922**
7. .87 X 98.1 = **85.347**
8. 34.61 X 4.15 = **143.6315**
9. $12.15 X 12 = **$145.80**
10. 789 X 123 = **97,047**

# Division on the Calculator

***NOTE: Review Vocabulary Words: Divisor, Quotient, and Dividend***

To divide on your calculator, follow these steps:

| | |
|---|---|
| Step 1: | Enter the Dividend |
| Step 2 | Press ÷ Key |
| Step 3 | Enter the divisor |
| Step 4 | Press = |

1. To divide 94 by 2 on your calculator, press the following keys:

| **Press Keys** | **Display Reads** |
|---|---|
| 9 4 (Dividend) | 94. |
| ÷ | 94. |
| 2 (Divisor) | 2. |
| = | 47. |

Answer: 47 (Quotient)

2. To divide 246 by 1.2 on your calculator, press the following keys:

| **Press Keys** | **Display Reads** |
|---|---|
| 2 4 6 | 246. |
| ÷ | 246. |
| 1 . 2 | 1.2 |
| = | 205. |

Answer: 205

3. To divide 189.625 by 10.25 on your calculator, press the following keys:

| **Press Keys** | **Display Reads** |
|---|---|
| 1 8 9 . 6 2 5 | 189.625 |
| ÷ | 189.625 |
| 1 0 . 2 5 | 10.25 |
| = | 18.5 |

Answer: 18.5

# Division on the Calculator

Solve the following division problems using the calculator:

1. 175 ÷ 25 =

2. 150.75 ÷ 4.5 =

3. 82.22 ÷ 1.1 =

4. 48.345 ÷ .123 =

5. 43210 ÷ 50 =

6. 987.234 ÷ .22 =

7. .00398 ÷ 1.2 =

8. 76.6 ÷ 3.3 =

9. 0.897 ÷ 2.3 =

10. 45.6 ÷ 4.56 =

Attachment J
Answer Sheet

# Division on the Calculator

Solve the following division problems using the calculator:

1. 175 ÷ 25 = **7**

2. 150.75 ÷ 4.5 = **33.5**

3. 82.22 ÷ 1.1 = **74.745454**

4. 48.345 ÷ .123 = **393.04878**

5. 43210 ÷ 50 = **864.2**

6. 987.234 ÷ .22 = **4487.42727**

7. .00398 ÷ 1.2 = **.0033166**

8. 76.6 ÷ 3.3 = **23.212121**

9. 0.897 ÷ 2.3 = **.39**

10. 45.6 ÷ 4.56 = **10.**

# Finding Part of a Whole Using the Calculator (Percentages)

**To find a percentage of a whole *using the % key*, follow these steps:**

Step 1: Enter the number representing the whole
Step 2: Press the X key
Step 3: Enter the number of percent
Step 4: Press the % key

## EXAMPLES:

1. Find 15% of 45

Step 1: Enter 45 on the calculator
Step 2: Press the X key
Step 3: Enter 15 on the calculator
Step 4 Press % key
Answer: 6.75

2. Find 20% of 3.60

Step 1 Enter 3.60 on the calculator
Step 2 Press the X key
Step 3 Enter 20 on the calculator
Step 4 Press % key
Answer: .72

# Changing Percents to Decimals

To change a percent to a decimal, move the decimal point two places to the LEFT and drop the % sign.

1. Change 29% to a decimal.
   Move the decimal point two places to the left
   Drop the % sign

   29.% = .29
   ←

2. Change 90% to a decimal.
   Move the decimal point two places to the left
   Drop the % sign

   90.% = .90
   ←

3. Change 3.4% to a decimal.
   Move the decimal point two places to the left
   (You must add a 0 in front of the 3 in order to have two places)
   Drop the % sign

   3.4% = .034
   ←

# Finding Part of a Whole Using the Calculator (Percentages)

**To find a percentage of a whole *using the decimal*, follow these steps:**

Step 1: Enter the number representing the whole
Step 2: Press the X key
Step 3: Enter the decimal number
Step 4: Press the equal (=) key

## EXAMPLES:

1. Find 15% (.15) of 45

Step 1: Enter 45 on the calculator
Step 2: Press the X key
Step 3: Enter .15 on the calculator
Step 4: Press the equal (=) key
Answer: 6.75

2. Find 20% (.20) of 3.60.

Step 1: Enter 3.60 on the calculator
Step 2: Press the X key
Step 3: Enter .20 on the calculator
Step 4: Press equal (=) key
Answer: .72

# Finding Part of A Whole Number on the Calculator

1. Find 5% of 75.

2. Find 80% of 720.

3. Find 21% of 168.

4. Find 75% of $787.36.

5. Find 20% of $480.00.

6. K-Mart placed an order for 500 red cotton rugs. Sixty percent (60%) of the order has been completed. How many rugs have been completed? _____

   How many rugs are needed to complete the order? _____

7. John and Bill like to talk while they are working. They work an 8-hour shift. If they spend 15% of their work time talking, how much time do they spend talking? _____

8. An inspector inspected 750 rugs. 15 rugs were rejected. What percent of the rugs were acceptable? _____

9. If you receive a 15% discount, how much would you pay for a rug that cost $45.00? _____

10. If you are allowed a 2% discount from a total bill of $282.54, what must you pay? _____

# Finding Part of A Whole Number on the Calculator

1. Find 5% of 75. **3.75**

2. Find 80% of 720. **576**

3. Find 21% of 168. **35.28**

4. Find 75% of $787.36. **$590.52**

5. Find 20% of $480.00. **$96.00**

6. K-Mart placed an order for 500 red cotton rugs. Sixty percent (60%) of the order has been completed. How many rugs have been completed? **60% of 500 = 300**

   How many rugs are needed to complete the order? **500 - 300 = 200**

7. John and Bill like to talk while they are working. They work an 8-hour shift. If they spend 15% of their work time talking, how much time do they spend talking? **1.2 hours**

8. An inspector inspected 750 rugs. 15 rugs were rejected. What percent of the rugs were acceptable? **98 percent**

9. If you receive a 15% discount, how much would you pay for a rug that cost $45.00? **$38.25**

10. If you are allowed a 2% discount from a total bill of $282.54, what must you pay? **276.89**

# Calculator Worksheet

Solve the following problems using the calculator:

1. 3.8 + 9.7 + 10.6 =

2. 19.23 + 8.45 + 26 =

3. .84 – .023 =

4. 17.45 X 8.3 =

5. 96.8 ÷ .2 =

6. 43.9 X 5 =

7. 16.3 + 3.76 + 90.234 – 24.3 + 1.23 – .003 =

8. 15% of 445 =

9. 80% of $389.76 =

10. 18.4 X 23.7 X 2.2 =

Attachment M
Answer Sheet

# Calculator Worksheet

Solve the following problems using the calculator:

1. 3.8 + 9.7 + 10.6 = **24.1**

2. 19.23 + 8.45 + 26 = **53.68**

3. .84 – .023 = **.817**

4. 17.45 X 8.3 = **144.835**

5. 96.8 ÷ .2 = **484**

6. 43.9 X 5 = **219.5**

7. 16.3 + 3.76 + 90.234 – 24.3 + 1.23 – .003 = **87.221**

8. 15% of 445 = **66.75**

9. 80% of $389.76 = **$311.81**

10. 18.4 X 23.7 X 2.2 = **959.376**

**401K**
**Insurance**
**Gross Pay**

# Benefits

**Advancements**
**Eligibility**
**Educational**
**Opportunities**

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**Module:** **Fieldcrest Cannon Employees Benefits** **Overall Time 60 min**
**Job Title:** **Yardage Binder Operators** **Page 1 of 1**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Utilize calculator skills to compute benefits using basic math functions with 100% accuracy. | **Motivational Activity:** Teacher will introduce a number trick activity (Attachment A) | 5 min | Attachment A | |
| | **Teach Vocabulary:** Teacher will use overhead transparency to introduce vocabulary words. | 5 min | Overhead Projector Transparency Attachment B | |
| | **Instructional Activities:** Teacher lead discussion of 401K plan. Completion of workbook Attachment C. | 15 min | Calculators Attachment C | Teacher will check for accuracy and understanding |
| | Teacher lead discussion of Medical Coverage Options. Completion of workbook Attachment D. | 15 min | Attachment D | Teacher will check for accuracy and understanding |
| | Teach lead discussion of Educational Opportunities. | 10 min | Attachment E | Teacher observation of responses |
| | Question and Answer session led by invited guest (Personnel Manager of Assistant Manager). | 10 min | Guest Speaker | |

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## FIELDCREST CANNON

**Job Title:** Yardage Binder Operators

**Module:** Fieldcrest Cannon Employee Benefits

**General Instruction Objective:** Familiarize associates with Fieldcrest Cannon, Inc. Benefits Package.

**Specific Instructional Objective:** Utilize calculator skills to compute benefits using basic math functions with 100% accuracy.

**Motivational Activity**: The teacher will introduce a number trick activity (Attachment-A) in order to initiate the students' interest in working with numbers.

**Vocabulary:** Teacher will use overhead transparency to orally review words that pertain to the benefit package of Fieldcrest Cannon, Inc. Vocabulary words are defined in Attachment B of participant workbook.

**Instructional Activities:**
Distribute calculators to learners.

Teacher will refer learners to pages 1 and 2 of Attachment C and conduct a teacher lead discussion of the Fieldcrest Cannon 401K Plan.

Teacher will refer learners to pages 3 and 4 of Attachment C. Teacher and students will work the first 4 problems together. After completing the first 4 problems, teacher will allow learners time to complete items 5-7 independently. (Teacher will observe learners and assist those needing assistance.) After completion, check answers for accuracy.

Teacher will refer learners to pages 1-3 of Attachment D and conduct a teacher led discussion of the Medical Coverage Options.

Learners will complete page 4 of Attachment D independently. (Teacher will observe learners and assist those needing assistance.) After completion, check answers for accuracy.

Teacher will refer learners to pages 1-4 of Attachment E in workbook and conduct a teacher led discussion of Educational Opportunities. Ask for a show of hands of those who are taking advantage of any of the educational opportunities offered at Fieldcrest Cannon.

Personnel Manager will conduct a Question and Answer session.

# Number Trick

**Directions:** The instructor will orally state the following information to the students. Students will solve the number trick on paper.

- Pick a 3-digit number — 345
- Write your number twice to form a 6 digit number — 345,345
- Divide your number by 7. It should divide evenly — 45,345 ÷ 7 = 49,335
- Divide the quotient (answer by 11)
  Again, there should not be a remainder — 49,335 ÷ 11 = 4,485
- Once more, divide the last quotient by 13 — 4,485 ÷ 13 = 345

Try the trick with different 3-digit numbers. What happens each time?

# Glossary

401K - A savings plan that lets you save for your retirement before you pay federal income taxes (tax deferred). Also, you do not pay federal income taxes on the dividends and interest you earn in the 401K plan until you start to spend the money at retirement.

Part-time - An employee who is scheduled to work less than the normal work week.

Deductible - A specified amount the employee is required to pay before the insurance company assumes responsibility for its percentage of expenses incurred. (This amount can vary according to the plan chosen.)

Eligibility - Qualified to be chosen; allowed to participate.

Leave of Absence - Permission to be absent from work for a specified time.

FCN - Fieldcrest Cannon Network (company insurance).

Percentage - A part of a whole expressed in hundredths.

Gross Pay - Amount of pay ***before*** taxes and other deductions are deducted.

Net Pay - Take home pay or pay ***after*** taxes and other deductions are deducted from gross pay.

Dependent Coverage - Insurance benefits for employee's spouse and each of his/her single children up to the age of nineteen or twenty-five if a full time student.

Out Sick - Absent from work due to a non-occupational illness or injury.

Inflation - A condition in which the money in circulation is more than the goods on sale.

Prospectus - A printed statement that describes or forecasts the course or nature of something and is distributed to investors or participants.

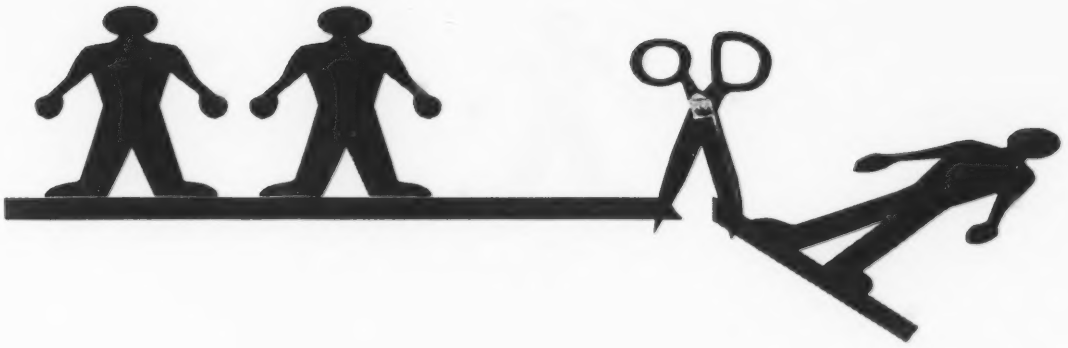
TQM - Total Quality Management

Attachment B
Transparency

# Vocabulary Words

| | |
|---|---|
| **401K** | **Gross Pay** |
| **Part-time** | **Net Pay** |
| **Deductible** | **Dependent Coverage** |
| **Eligibility** | **Out Sick** |
| **Leave of Absence** | **Inflation** |
| **FCN** | **Prospectus** |
| **Percentage** | **TQM** |

**Note:** Attachments C, D, and E have been deleted from the generic curriculum due to the nature of their content. These attachments pertained to the benefits at Fieldcrest Cannon and would not pertain to other companies. Information relating to the particular company should be inserted here.



# *DON'T GET LEFT OUT!*

As technology changes, workers must acquire the higher level skills needed to perform in the workplace of today. The worker of the 21st century must possess the skills necessary to employ technology, evaluate information, and deal effectively with human relations matters. The basic skills that were once sufficient for assembly line production are insufficient for workers confronted with complex quality control systems, flexible production, quality circles, and total quality management (TQM) (Workplace Literacy, 1992).

## *LET'S KEEP UP!*

## *TAKE ADVANTAGE OF OPPORTUNITIES*

# Computer

**Module: Computer** **Overall Time 1 hour**

**Job Title: Yardage Binder Operators** **Page 1 of 1**

| Specific Instructional Objective | Learning Activities | Time | Resources/ Materials | Evaluation Process |
|---|---|---|---|---|
| Learners will be able to identify basic computer components with 100% accuracy. Apply computer knowledge during activities. | **Motivational Activity:** The teacher will discuss numerous changes that are taking place involving the use of computers. | 10 min | Dry erase board, markers | Participation |
| | **Vocabulary**: Learners will work together to define vocabulary words. | 10 min | Attachment A, Overhead projector, transparency | Participation |
| | **Instructional Activities:** The instructor will refer learners to the history of computers. Discussion will follow and review of material. | 10 min | Attachment B, Overhead, markers | Observation, participation |
| | **Guided Practice:** The instructor will use a computer set up on the classroom to help learners identify computer components. | 10 min | Attachment C | Participation |
| | **Independent Practice:** After dividing the learners into groups the first group will complete hands on activities while the second group will complete written activities. | 20 min | Attachment D, E, F, and G | Computers |
| | **Evaluation:** Instructor will observe computer work stations and review written assignments. | 5 - 20 min | | Observation |

# Fieldcrest Cannon

**Job Title:** Back Prep Operators

**Module:** Computer Basics

**General Instructional Objective:** Provide the learner with a general understanding of computers.

**Specific Instructional Objective:** Learners should be able to identify basic computer components with 100% accuracy and apply knowledge in hands-on activity.

**Motivational Activity:** Allow time for class discussion of how the group has noticed changes taking place with the use of computers. (Examples: grocery store, price scanners in retail stores, ATM machines, inventory control at work, personal computers at home, etc.). Discuss the uses of computers at Fieldcrest Cannon.

**Vocabulary:** Instructor will ask learners to help define key terms. The definitions will be provided in a glossary of terms in learner's materials (Attachment A).

**Instructional Activity:** Instructor will refer learners to the brief history of computers in workbook (Attachment B). After reading the history, the instructor will ask learners to describe to the class different kinds of computers, if any, they have used.

**Guided Practice:** Instructor will use a computer set up in classroom to help learners identify computer components. Learners will refer to Attachment C in learner notebook.

**Independent Practice:** Learners will be divided into groups with some completing hands-on activities at the computer stations using Attachments D, E, and F. Learners not working on actual computer activities will be completing written activities (Attachment G and H).

**Closure/Evaluation:** Instructor will check matching exercise for accuracy and observe learners in hands-on activity.

# Glossary

**Boot:** To start up the computer.

**Central Processing Unit (CPU):** The part of the computer composed of electrical circuitry directing most of the computer system's activities. It processes the data received from an input device and then transfers it to an output device.

**Compact Disk/read-only memory (CD-ROM):** A disk whose data is imprinted by the disk manufacturer; the user cannot change it or write on the disk - the user can only "read" the data.

**Cursor:** A marker on the video display that indicates where the next character input will appear.

**Disk Drive:** Device into which a diskette is placed for storing and retrieving data.

**Diskette:** Thin plastic disk enclosed in paper or plastic that can be magnetically encoded with data - standard diskettes are 5 1/4 or 3 1/2 inches, commonly referred to as "floppy disks" most are now covered by a rigid plastic and are no longer "floppy".

**DOS (Disk Operating System):** Internal command instructions for microcomputers.

**File:** The computer's storage unit is similar to a filing cabinet. Group of related records are identified by a name. A file may contain data (data files) or software instructions (program files).

**Hardware:** The physical components of a computer or computer system.

**Input:** Information that is submitted to the computer for processing.

**Monitor:** A video display unit that is often used for viewing computer output.

**Mouse:** Hand-held device connected to the computer by a cable; when the mouse is rolled across the desktop, the cursor moves across the screen. A button on the mouse allows users to make a menu selection or issue a command.

**Output:** Computer-produced text, graphics, or sound in hardcopy or softcopy form that can be used immediately.

**Printer:** An output device that prints characters, symbols, and graphics on paper.

**Prompt:** A message the computer gives to its operator that may be a symbol, sentence, or colored light.

**Program:** List of instructions telling the computer what to do.

**RAM (Random Access Memory):** A temporary storage of data and program instructions in the main memory; data can be stored and retrieved at random.

**ROM (Read Only Memory):** Memory space that includes programs or data that may be read by the computer, but may not be erased or altered by the user. Usually includes programs to boot the computer and a computer language. The contents of ROM are not lost when the power is turned off.

**Software:** Programs used to instruct a computer.

**Window:** Most video display screens allow 24-25 lines of text to be viewed at one time; this portion is called a window. By moving (scrolling) text up and down the screen, other windows of text become available.

# A BIT OF HISTORY

***The computer.....What is it and where did it come from?***

The computer is an electronic device that processes information according to specified instructions or commands. Computers originated from the adding machine and calculator concept. The first known adding machine was called the "reckoning machine" and originated in the mid 1600's. However, it was not until the 1830's that Charles Babbage developed the "Difference Machine." The "Difference Machine" was basically a moving machine with no memory. Babbage's ideas were correct but were far beyond the technology of the time. Babbage is commonly referred to as the father of the computer!

***The development of the Personal Computer(PC)***

By the mid 70's the Altair 8800 was available in kit form through mail order. However, it was not until 1977, that the microchip was developed. The microchip allowed computers to perform input, output, and additional functions from a small silicon chip, therefore reducing the size of personal computers. The first Apple Computer was released in 1977. In 1980, IBM introduced its personal computer.

With each generation, computers have become smaller, faster, and more powerful. Microchip technology is what has made the personal computer a reality. It enables your PC to do more work faster than the older models.

Fieldcrest Cannon utilizes several PC units to maintain business files and reports. The training room also has personal computers where employees may utilize educational software programs.

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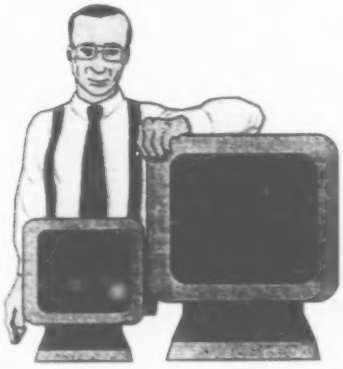
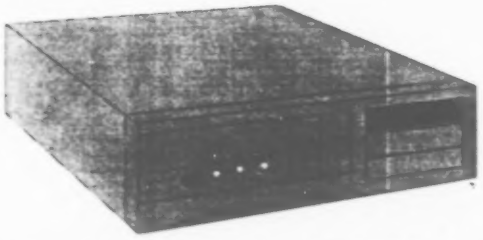
# *What makes up a Computer System?*

## Hardware

The parts of the computer that can be seen, touched, and felt are referred to as "hardware".



The **monitor** is a TV-like screen attached to the computer with a cable. Monitors display text in color or black and white.



A **system unit** is the part of the computer that houses the CPU (the "brains" of the computer), ROM, and disk drives (refer to the glossary for definitions of these terms).

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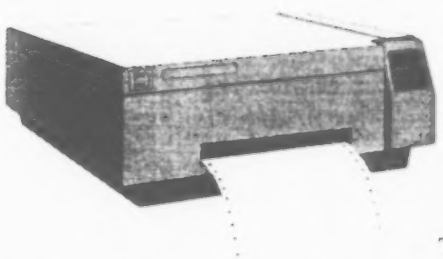
The **keyboard** is an input device and is similar to a typewriter. The keyboard is used to enter information into the computer. If you have typing skills you are one step ahead! Basic keyboard knowledge is an important element in becoming computer literate.



The **printer** produces a printed or "hard copy" of the work performed by the computer.

***There are three types of printers***:

- Dot-Matrix – Produces characters made up of a series of dots.
- Inkjet – Produces characters with a spray of ink and can be color or black and white.
- Laser – Produces the highest quality of printed output. Laser printers are similar to photocopiers. They can be color or black and white.

***A Computer has no intelligence of its own!***

# Software

Since a computer has no intelligence of its own, it must be supplied with instructions so that it knows what to do and how and when to do it. These instructions are called ***software***. The importance of software cannot be overestimated. You may have one of the best computers on the market; however, unless you have software to "instruct" it, the computer will only take up space.

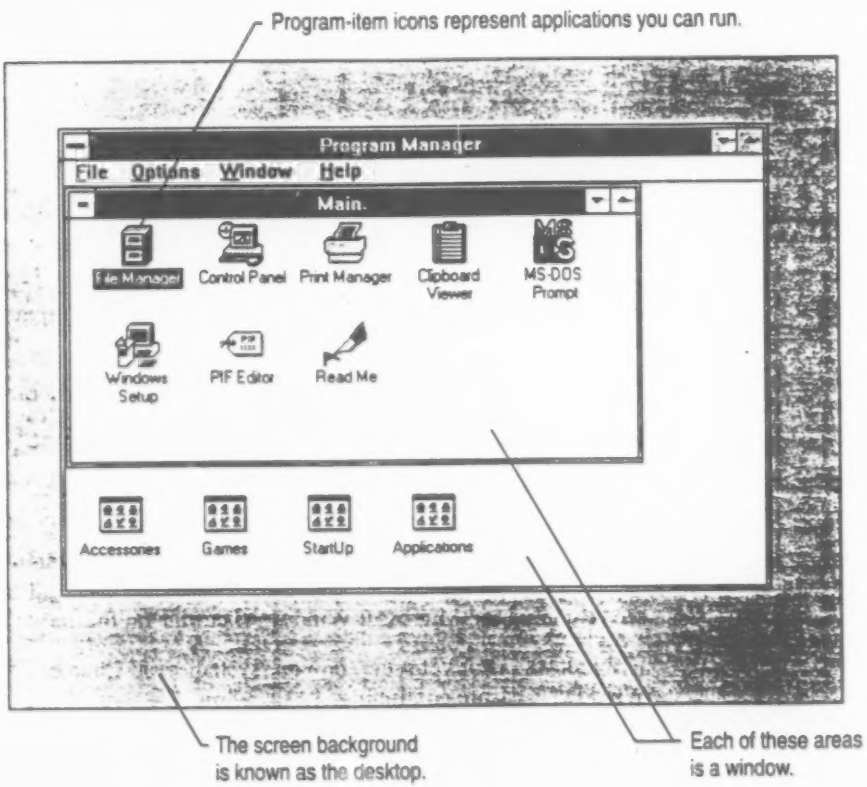
Software is made up of a group of related programs, referred to as ***software packages***. Each program is a group of related instructions that perform very specific processing tasks. Software packages, which are usually created by professional software writers, are accompanied by user's manuals that explain how to use the software.

# *WINDOWS What is it? How does it work?*

## *Let's give it a try!*

**As you work with Windows, there are a few basic terms with which you need to become familiar. Let's take it step by step. You do your work in rectangular areas of the screen called *windows*. These windows appear on a background called the *desktop*. The *applications* you work with (such as word-processing or spreadsheet applications) are represented in Windows by small graphical symbols called *icons*.**

**You often carry out an action in Windows by choosing (double clicking with the mouse) an item: For example, choosing an icon can start an application. You choose an icon by double-clicking it with the mouse.**




Source: Microsoft® Windows™, Version 3.1, User's Guide.



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# *There's More.....*

**Program Manager**

When you start Windows, the first thing you see is **Program Manager**, which continues to run as long as you are using Windows. Initially, the Program Manager window displays the contents of the **Main group**. A ***group*** is a collection of applications you can run. The names and icons for the group are displayed in the ***group window***.

## Basic Mouse Techniques

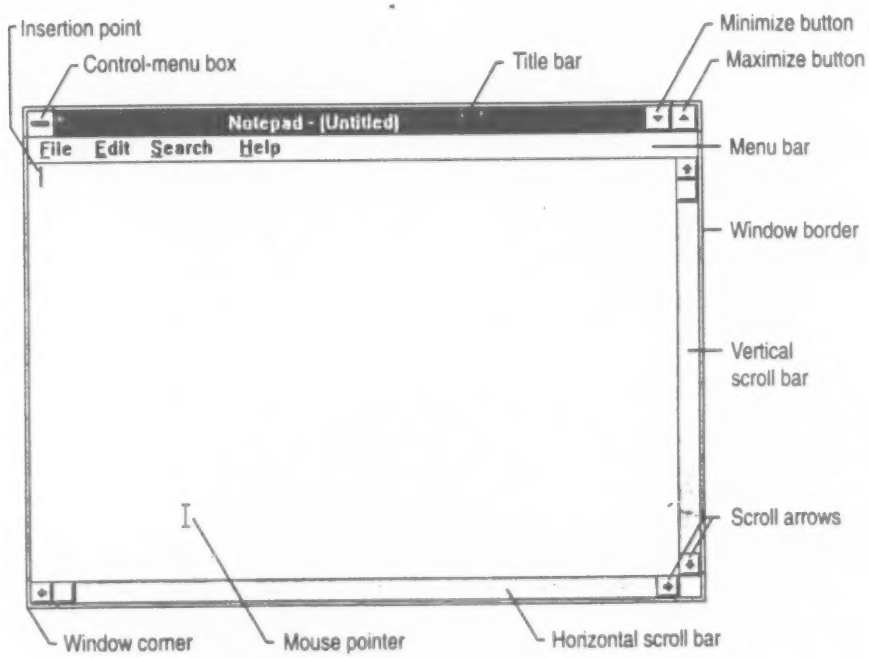
The following table describes some important "mouse" terms!

| Term | Meaning |
|---|---|
| Click | To quickly press and release the mouse button. |
| Double-click | To click the mouse button twice in rapid sucession. |
| Drag | To press and hold down the mouse button while you move the mouse. |
| Point | To move the mouse until the mouse pointer on the screen points to the item of choice. |

Source: Microsoft® Windows™, Version 3.1, User's Guide.

# Parts of a Window

Most windows have certain elements in common, such as a title bar and a menu bar. With practice you will learn more about how to use windows. The following diagram will help you identify the parts of a window:



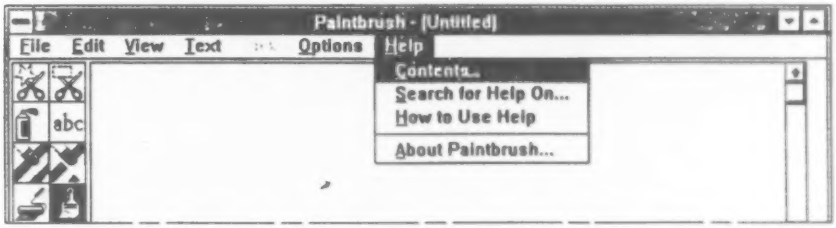

Source: Microsoft® Windows™, Version 3.1, User's Guide.

# HELP!

Never sit and stare at a document or screen. There is always help available! Windows provides on-line **Help** to assist you in working with Windows. The following are some of the ways you can obtain Help:

- Press the F1 key to view a list of Help topics for the application you are working with.
- When you are using a dialog box that has a Help button, click the Help button (or press F1) to display information about working with the dialog box.
- Choose the Help menu in any application to display a list of Help commands

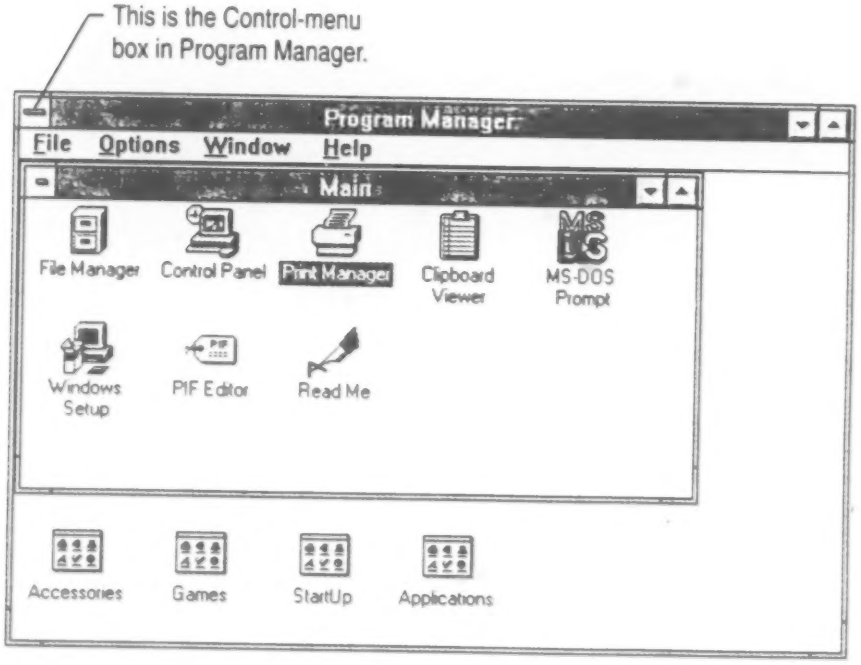
The buttons near the top of the Help window can help you find the information you need.




Source: Microsoft® Windows™, Version 3.1, User's Guide.

# QUITING WINDOWS

Before turning off your computer, it is recommended that you quit Windows. You can quit Windows by double-clicking the Control-menu box in Program Manager.

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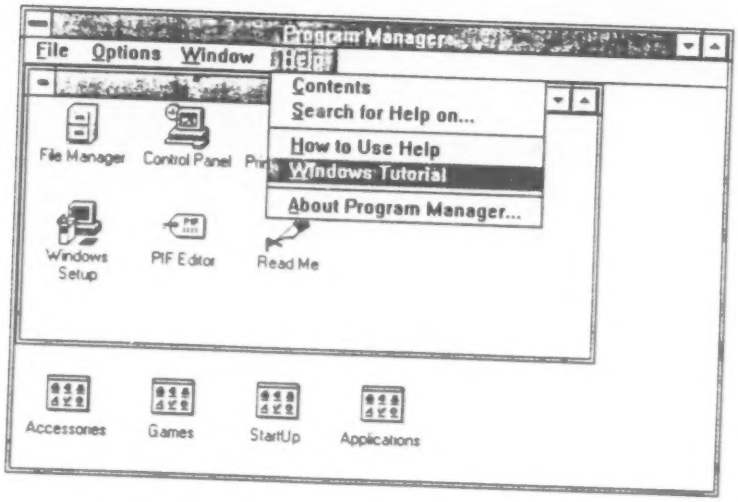
Source: Microsoft® Windows™, Version 3.1, User's Guide.

# WINDOWS TUTORIAL

The Windows Tutorial is an interactive application that teaches you the basics of using a mouse and Windows. To use the Tutorial, follows these directions:

In the Program Manager window, click on the Help menu, and then click the Windows Tutorial command. This application will guide you step by step. ***Give it a try!***




Source: Microsoft® Windows™, Version 3.1, User's Guide.



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# Special Keys found on a Keyboard

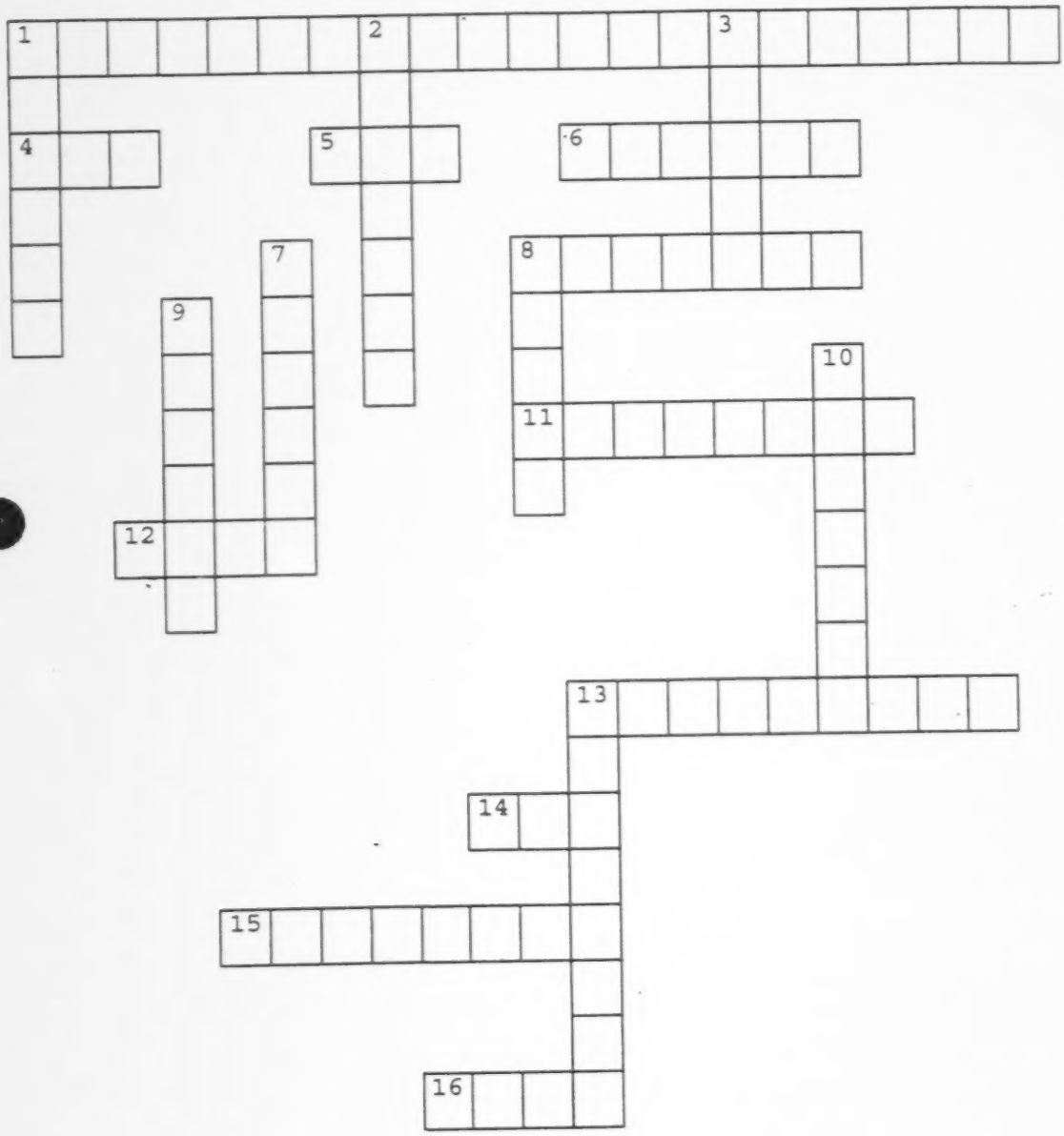
| | |
|---|---|
| **Enter** | Moves cursor to the next line or tells the computer to process the information on that line |
| **Esc** | Exits out of a program or backs up one step |
| **Tab** | Moves left or right on the screen a fixed number of spaces |
| **Caps** | Switches between upper and lower case letters |
| **Shift** | Used to access capital letters or the top character on a key |
| **Ctrl** | Used with other keys to change their functions |
| **Alt** | Used with other keys to change their functions |
| **Backspace** (←) | Moves left and erases the character to the left of the cursor (Usually represented as ← located at end of numbers row) |
| **F1 - F12** | Function keys that are programmable and used for different purposes within each application |
| **PrtScr** | Prints a copy of the screen image on paper |
| **Ins** | Inserts a character at the cursor; can also toggle between insert and type over modes |
| ↑ ↓ | Moves the cursor in the indicated direction |
| **Home** | Moves the cursor to the upper left corner or top of the screen |
| **End** | Moves the cursor to the end of a line or page; can move the cursor to the bottom of a list |
| **PgUp** | Moves cursor up one screen or page |
| **PgDn** | Moves cursor to the next screen or page |

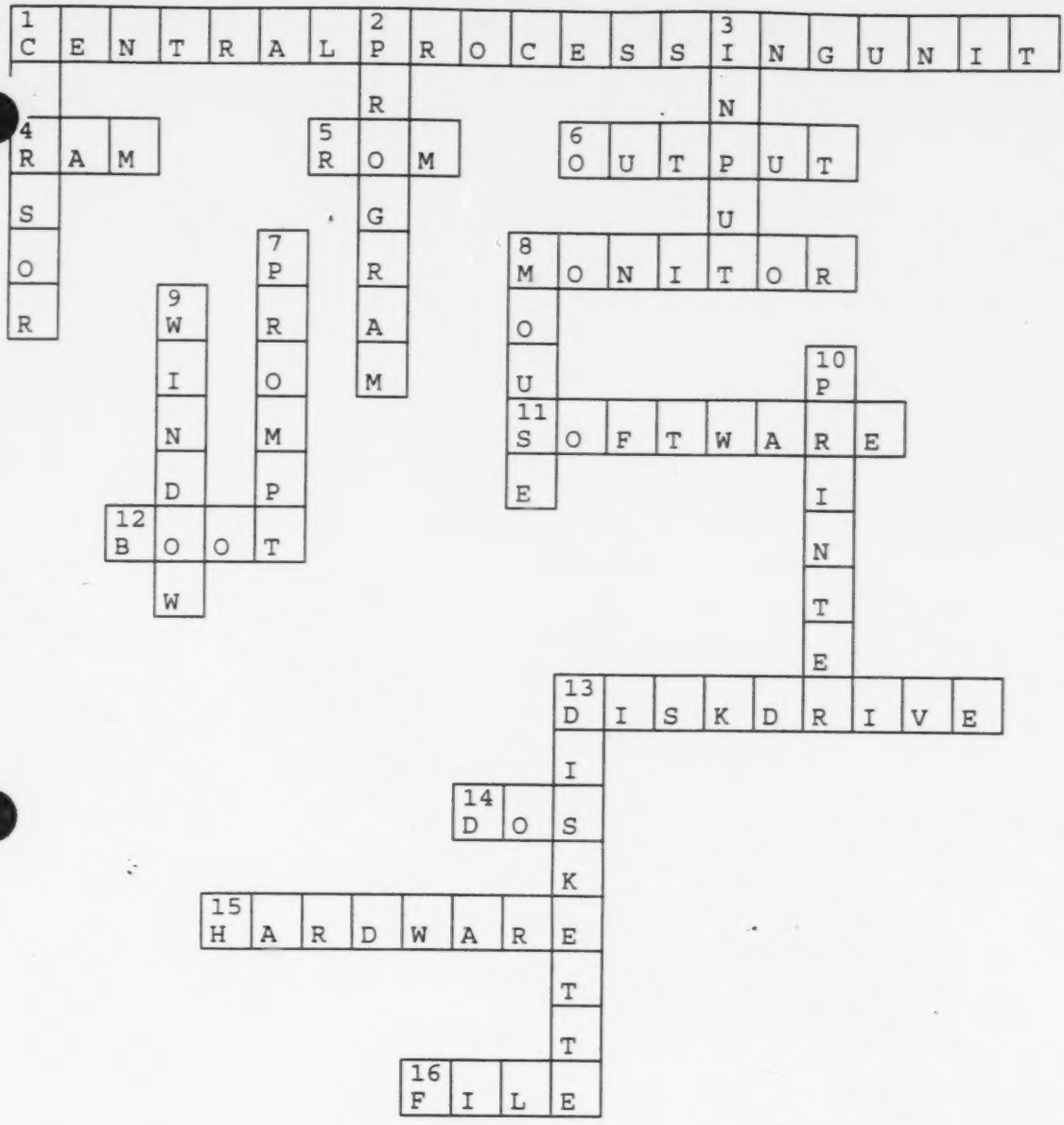
# WORDSEARCH

| T | E | R | A | W | D | R | A | H | R | A | S | O | F | T | W | A | R | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | G | F | D | S | A | Q | E | W | E | R | T | Y | U | O | I | O | P | R |
| N | K | S | I | D | T | C | A | P | M | O | C | F | C | O | R | D | X | E |
| U | F | H | U | I | J | K | O | P | L | M | N | C | O | B | Z | S | E | T |
| G | T | I | L | E | L | P | Q | A | W | Z | S | E | X | D | R | C | F | N |
| N | Q | P | L | L | O | K | M | I | J | N | U | H | I | B | Y | G | V | I |
| I | P | L | O | E | H | U | I | J | B | Q | W | E | R | N | T | Y | U | R |
| S | A | S | Z | V | X | C | V | B | N | M | E | G | I | R | P | O | I | P |
| S | P | O | I | I | U | Y | T | R | R | T | E | S | L | L | N | U | S | S |
| E | T | R | E | R | W | A | S | D | T | F | G | H | U | J | K | L | T | E |
| C | A | L | S | D | K | D | J | E | F | H | G | Q | P | O | W | O | E | I |
| O | C | N | X | K | M | Z | K | T | P | R | O | G | R | A | M | Y | R | U |
| R | G | H | F | S | J | S | D | K | R | S | L | A | Z | M | X | N | C | B |
| P | K | J | K | I | I | L | P | Q | O | I | W | W | I | E | U | R | Y | T |
| L | A | S | D | D | F | G | H | J | M | K | L | M | I | A | B | Z | X | G |
| A | B | A | L | V | R | E | M | C | P | O | B | A | J | N | G | H | N | I |
| R | O | I | E | O | U | T | P | U | T | M | O | N | I | C | D | A | J | O |
| T | B | O | S | S | I | L | W | N | I | V | E | M | E | B | N | O | N | A |
| N | N | R | L | A | M | C | Y | A | B | I | G | M | T | T | Y | A | W | N |
| E | U | S | I | D | O | S | U | O | L | E | L | A | A | Y | K | C | N | B |
| C | E | R | S | U | R | D | K | F | B | I | D | R | O | T | I | N | O | M |

Boot
Central Processing Unit
Compact Disk
Cursor
Disk Drive
Diskette
DOS
File
Hardware
Input
Monitor
Mouse
Output
Printer
Prompt
Program
RAM
ROM
Software
Window

# CROSSWORD PUZZLE




1 CENTRAL
2 PROCESSING
3 INPUT
4 RAM
5 ROM
6 OUTPUT
7 PROMPT
8 MONITOR
9 WINDOW
10 PRINTER
11 SOFTWARE
12 BOOT
13 DISKDRIVE
14 DOS
15 HARDWARE
16 FILE

ACROSS

1. The part of the computer that processes the data received from an input device and transfers it to an output device. (3 words)
4. A temporary storage of data and program instructions in the main memory.
5. Memory space that includes programs or data that may be read by the computer, but not erased or altered by the user.
6. Computer-produced text, graphics, or sound in hardcopy or softcopy form that can be used immediately
8. A video display unit that is often used for viewing computer output.
11. Programs used to instruct a computer.
12. To start up the computer.
13. Device into which a diskette is placed for storing and retrieving data. (2 words)
14. Internal command instructions for microcomputers.
15. The physical components of a computer or computer system.
16. The computer's storage unit that is similar to a filing cabinet.

DOWN

1. A marker on the video display that indicates where the next character input will appear.
2. List of instructions telling the computer what to do.
3. Information that is submitted to the computer for processing.
7. A message the computer gives to its operator that may be a symbol, sentence, or colored light.
8. Hand-held device connected to the computer by a cable; it allows the user to make a menu selection or issue a command.
9. A _____ is the portion of lines the video display screen allows you to see.
10. An output device that prints characters, symbols, and graphics on paper.
13. Thin plastic disk commonly referred to as "floppy disks".

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